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THE
BRITISH AND FOREIGN
MEDICAL REVIEW,

FOR JULY, 1840.

PART FIRST.

Analytical and Critical Reviews.

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1. *Grundriss der gesammten Augenheilkunde.* Von Dr. AUGUST ANDREÆ. Erster Theil: *Allgemeine Augenheilkunde, mit drei Steindrucktafeln.* Zweiter Theil: *Specielle Augenheilkunde.*—Magdeburg, 1834-7. 8vo, pp. 123-559.
Elements of Ophthalmic Medicine and Surgery. By Dr. AUGUSTUS ANDREÆ. First Part, containing the Generalities of the Subject. Second Part, containing the Specialities.—Magdeburg, 1834-7.
2. *Dissertatio Inauguralis medico-literaria complectens Conspectum Historicum Scholæ Clinicæ Ophthalmiatricæ Viennensis, &c.* Auctore ANTHONIO HARDWIGER.—Viennæ, 1836.
3. *Historical View of the Ophthalmological Clinic of Vienna.* By ANTHONY HARDWIGER.—Vienna, 1836.
3. *On Single and Correct Vision, by means of Double and Inverted Images on the Retinæ.* By W. P. ALISON, M.D., F.R.S.E., Professor of the Institutes of Medicine in the University of Edinburgh. (*In the Transactions of the Royal Society of Edinburgh*, vol. xiii.)—Edinburgh, 1836.
4. *Contributions to the Physiology of Vision.* Part the First. *On some remarkable and hitherto unobserved Phenomena of Binocular Vision.* By CHARLES WHEATSTONE, F.R.S., Professor of Experimental Philosophy in King's College, London. (*In the Philosophical Transactions.* Part ii., 1838.)—London, 1838.
5. *Klinische Darstellungen der Krankheiten und Bildungsfehler des menschlichen Auges, der Augenlider und der Thränenwerkzeuge nach eigenen Beobachtungen und Untersuchungen.* Herausgegeben von Dr. FRIEDRICH AUGUST VON AMMON, Leibarzte Sr. Majestät des Königs von Sachsen, &c. Erster Theil, enthaltend: *Klinische Darstellungen der Krankheiten des menschlichen Auges. Hierzu drei hundert sieben und siebenzig illuminirte Figuren auf drei und*

- zwanzig Tafeln. Folio.—Berlin, 1838. Zweiter Theil, enthaltend: *Klinische Darstellungen der Krankheiten der Augenlider, der Augenhöhle und der Thränenwerkzeuge. Hierzu zwei hundert und zehn illuminierte Figuren auf zwölf Tafeln. Folio.—Berlin, 1838.*
- Clinical Illustrations of the Diseases and Malformations of the Human Eye, the Eyelids, and Lachrymal Organs, founded on the Author's own Observations and Researches.* By Dr. FREDERICK AUGUSTUS VON AMMON, Physician in Ordinary to the King of Saxony, &c. First Part, containing *Clinical Illustrations of the Diseases of the Human Eye. With Three Hundred and Seventy-seven coloured Figures in Twenty-three Plates. Folio.—Berlin, 1838.* Second Part, containing *Clinical Illustrations of the Diseases of the Eyelids, the Orbits, and Lachrymal Organs. With Two Hundred and Ten coloured Figures in Twelve Plates. Folio.—Berlin, 1838.*
6. *De Iritide. Commentatio ab illust. Societate medico-practica quæ Lutetiæ Parisiorum floret, &c., premio aureo publice ornata.* Scripsit FRID. AUG. AB AMMON, D.M., Potentissimi regis Saxonie Archiater, &c. Cum tab. æn. ii.—Lipsiæ, 1838.
- On Iritis. An Essay to which a gold medal was awarded by the Society of Practical Medicine of Paris.* By Dr. F. A. VON AMMON, Physician in Ordinary to the King of Saxony, &c. With Two Copperplates.—Leipzig, 1838.
7. *Guide Pratique pour l'Etude et le Traitement des Maladies des Yeux.* Par CH. J. F. CARRON DU VILLARDS, Docteur en Médecine et Chirurgie, Professeur d'Ophthalmologie à Paris, &c.—Paris, 1838. Deux tomes, 8vo.
- Practical Guide to the Study and Treatment of the Diseases of the Eyes.* By CH. J. F. CARRON DU VILLARDS, M. & C.D., Lecturer on Ophthalmology in Paris. With Plates. In two volumes, 8vo. Vol. I. pp. 556. Vol. II. pp. 644.
8. *Handbuch der Physiologie des Menschen.* Von Dr. JOHANNES MÜLLER, &c. Zweiten Bandes, Zweite Abtheilung: *Der speciellen Physiologie Fünftes Buch: Von den Sinnen. I. Abschnitt, Vom Gesichtssinn.*
- Elements of Physiology.* By J. MÜLLER, M.D., Professor of Anatomy and Physiology in the University of Berlin, &c. Translated from the German with Notes, by WILLIAM BALY, M.D., Graduate of the University of Berlin. Part V., containing *the Senses. Section I. of Vision.*—London, 1839.
9. *Cours d'Ophthalmologie, ou Traité complet des Maladies de l'Œil, professé publiquement à l'Ecole pratique de Médecine de Paris.* Par M. ROGNETTA, Docteur en Médecine et en Chirurgie, Professeur particulier de Pathologie externe, &c.—Paris, 1839. 8vo, pp. 468.
- Lectures on Ophthalmology, delivered publicly at the Practical School of Medicine of Paris; or a Complete Treatise on the Diseases of the Eye.* By M. ROGNETTA, M. & C.D., Lecturer on Surgery.—Paris, 1839.
10. *Handbuch der Augenheilkunde zum Gebrauche bei seinen Vorlesungen.* Von MAXIMILIAN JOSEPH CHELIUS, der Medicin und Chi-

rurgie Doctor, ordentlichem öffentlichen Professor der Chirurgie und Augenheilkunde, Director der chirurgischen und Augenkranken-Klinik zu Heidelberg, &c. Zweiter Band, *Die organischen Krankheiten des Auges enthaltend*.—Stuttgart, 1839. 8vo, pp. 552.

Manual of Ophthalmic Medicine and Surgery, for the use of his Pupils. By MAXIMILIAN JOSEPH CHELIUS, M. & C.D., Professor of Surgery and Ophthalmology, and Director of the Surgical and Ophthalmic Clinic at Heidelberg, &c. Second Volume, *containing the Organic Diseases of the Eye*.—Stuttgart, 1839.

11. *Die sogenannte contagiöse oder ägyptische Augenentzündung. Eine Monographie.* Von BURKARD EBLE, Doctor der Medicin und Chirurgie, Bibliothekar der medicinisch-chirurgischen Josephsakademie zu Wien, &c. Mit 9 colorirten Abbildungen.—Stuttgart, 1839. 8vo, pp. 267.

The so-called Contagious or Egyptian Ophthalmia. A Monography. By BURKARD EBLE, M. & C.D., Librarian of the Josephine Academy of Vienna. With Nine coloured Figures.—Stuttgart, 1839.

12. *An Introductory Lecture on the Anatomy, Physiology, and Diseases of the Eye, delivered at the Birmingham Royal School of Medicine and Surgery, October 4, 1839.* By RICHARD MIDDLEMORE, Surgeon to the Birmingham Eye Infirmary, &c.—London, 1839. 8vo, pp. 30.

13. *A Practical Treatise on the Diseases of the Eye.* By WILLIAM MACKENZIE, M.D., Surgeon Oculist in Scotland in Ordinary to her Majesty, Lecturer on the Eye in the University of Glasgow, and one of the Surgeons to the Glasgow Eye Infirmary. To which is prefixed an Anatomical Introduction, explanatory of a Horizontal Section of the Human Eyeball. By THOMAS WHARTON JONES, Surgeon. Third Edition.—London, 1840. 8vo, pp. 923.

14. *Manuel Pratique des Maladies des Yeux, d'après les Leçons Cliniques de M. le Professeur Velpeau, Chirurgien de l'Hôpital de la Charité.* Par GUSTAVE JEANSELME.—Paris, 1840. 18mo, pp. 676.

A Practical Manual of the Diseases of the Eyes, composed from the Clinical Lectures of Professor Velpeau, Surgeon of the Hospital of La Charité. By GUSTAVUS JEANSELME.—Paris, 1840.

15. *Traité de Pathologie externe et de Médecine opératoire.* Par AUG. VIDAL (de CASSIS), Chirurgien de l'Hôpital de Lourcine, Professeur agrégé à la Faculté de Médecine de Paris, Professeur particulier de Pathologie externe et de Médecine opératoire.—Paris, 1840. Tome troisième. (*Maladies des Yeux.*) 8vo, pp. 588.

A Treatise on Surgical Pathology and on Operative Surgery. By AUG. VIDAL (de CASSIS), Surgeon of the Hospital of Lourcine, Lecturer on Surgery, &c.—Paris, 1840. Vol. III. (*Diseases of the Eye.*)

TRUE as it is, that the diseases of the eye do not differ essentially from the diseases of any other part of the body, and that the general treatment of all must be regulated by the same principles, it is not to be denied that in the pathology and therapeutics of the eye there are specialities which in many cases so preponderate over the generalities as very much to obscure the analogy. The complete analogy in fact between the diseases of the eye and those of the rest of the body is not an *à priori* matter. It

is only to be perfectly comprehended *à posteriori*; that is, when we are so far acquainted with both classes of diseases as to be able to distinguish what is fundamental, from what is accessory, and then excluding the latter, subject the former only to our comparison. Pursued in this manner the study of the diseases of the eye is found to illustrate, as well as to be illustrated by, those of other parts of the body. The points, however, in the pathology and therapeutics of the eye which demand special consideration are so numerous, so complicated, and often so much out of the way of general pathology and therapeutics, that, considering the importance of the sense of vision, a course of medical education cannot be considered complete unless ophthalmology has for some time especially engaged the student's attention. And here we would remark that to study ophthalmology effectively, an extensive and accurate knowledge of anatomy and physiology is the best preparation.

Ophthalmiatry took its rise in Egypt—in that country where diseases of the eye are endemic. The oculists of Egypt, indeed, were in early times in request among the other nations of the East, as appears from the story in Herodotus about Cyrus, King of Persia, sending to Amasis, king of Egypt, for the most expert oculist of his dominions. From Egypt the art of treating diseases of the eye was introduced into Greece. The Greeks being good observers, we find that, notwithstanding the want of accurate anatomical knowledge, which materially obstructed the study of the diseases of other organs, they were enabled, on account of the exposed situation of the eye and its transparency, to become great proficients in ophthalmiatry. Some idea of the extent of the knowledge of the diseases of the eye possessed by the Greeks may be had by considering that many of the names now in use have actually descended from them, and by casting a glance at the summary given by Celsus; for, though Celsus wrote at Rome, it is to be remembered his surgery was entirely that of the Greeks. As the Greeks received from the Egyptians their first instructions in the art of healing, so the Romans were debtors to the Greeks. In fact the medical practitioners of ancient Rome were either Greeks or persons who had been educated in the schools of Greece. That *medici ocularii* were not wanting among the Romans, we have sufficient proofs in the inscriptions on seals, &c., which are to be met with in collections of antiques. Ophthalmiatry continued to be successfully cultivated and practised by the younger Greeks, and much on the diseases of the eye is contained in the works of the Arabian writers, derived no doubt from the Greek manuscripts which fell into their hands.

Until the commencement of the last century, little more was known of diseases of the eye than what is found in the Greek and Arabian writers; but as the anatomy of the eye began to be more carefully studied, so its diseases became better understood. Circumstances were, moreover, in a favorable train: Lord Bacon's philosophy had taught men the necessity of making experiments and observations;—the true seat of cataract which had been demonstrated by Rolfinck, Borel, and others, was now confirmed by Brisseau. Moreover, Kepler had, by his discovery of the real use of the crystalline lens, proved the retina to be the true seat of vision, and had explained the action of glasses (invented three or four hundred years before) in improving sight.

It was in 1728 that Cheselden succeeded in first making an artificial

pupil—an operation, the idea of which appears to have been previously suggested by Woolhouse, surgeon to James II. About the middle of the same century, Daviel, a French surgeon, practised extraction through an incision of the cornea, as a regular method of removing cataract; while a few years later, Percival Pott adopted laceration of the capsule and the breaking up of the lens as a distinct mode of operating independent of couching. It thus appears that the first grand improvements in eye-medicine were all made by English and French surgeons. Before the establishment of the Ophthalmic School of Vienna, eye-medicine was in so low a state in Germany, that those who could afford it went to France to be operated on for cataract. A complete revolution in this matter, however, has taken place since, and the Germans have far outstripped the French, and were fast outstripping the English surgeons, until the breaking out of the Egyptian ophthalmia in the army forcibly recalled the attention of the latter to the subject of eye diseases. More recently the French have begun to bestir themselves also. All that is now wanting, therefore, to impart to eye-medicine the highest possible state of perfection is to bring the energies of the English and French surgeons fully to bear on the subject, by rendering it a more important item in the curriculum of study than has yet been done in France and England; but which has already obtained for years in Germany.

As the establishment of the Ophthalmic School of Vienna forms an important era in the history of eye-medicine, and as it has had a most beneficial influence on its advancement, we think it will not be out of place here to give a short historical sketch of it, derived from Dr. Hardwiger's thesis.

In 1773 the Empress Maria Theresa established in the University of Vienna a special chair for eye-medicine. Barth, who was born in Malta in 1745, was the first professor. He was afterwards appointed to the professorship of anatomy in addition. On the establishment of the great General Infirmary in 1784 by the Emperor Joseph II., two large wards were set apart for eye-patients; and a great number of persons affected with cataract were collected from all parts by public advertisement. These Barth operated on and attended carefully until their recovery; and this was continued yearly until his resignation in 1791. In 1784 Barth selected, at the wish of the Emperor, two persons to be specially instructed in ophthalmic medicine and surgery—his choice fell on his own prosecutor Ehrenritter, and on the prosecutor at the Josephine Academy, the afterwards so-celebrated John Adam Schmidt. Barth was succeeded in his professorships of anatomy and ophthalmology by the distinguished Prochaska. Beer, born in Vienna in 1765, was, on account of his talent for drawing, taken by Barth to assist him in his microscopical researches and afterwards to be his private assistant. As Barth retired from practice Beer got into it; and in 1797 began to give private instructions in eye-medicine. After having taught in this manner for a period of fourteen years, a plan of public clinical instruction in eye-medicine was established by order of the Emperor in 1812. On the 28th of April of the following year, Beer commenced his clinical duties as extraordinary professor. In 1818 he was made ordinary professor, and the subject of eye-medicine was elevated to the rank of an ordinary branch of medical study. F. Jaeger and Rosas were Beer's pupils in 1812-13. Rosas

was Beer's assistant from 1816 to 1819. In the year 1819 Beer was seized with apoplexy, and died in April, 1821. Rosas, who had been two years professor of ophthalmology in Padua, succeeded Beer. The conferring of this appointment upon Rosas in preference to Jaeger was considered owing to the operation of private interest, and not by any means to superiority of qualification in Rosas; for Jaeger was with justice pointed to by the profession as the proper successor of Beer. Jaeger, who, by the by, is Beer's son-in-law, is now professor in the Josephine Academy, the situation which John Adam Schmidt held.

Beer is well known by the accurate descriptions and histories of the diseases of the eye he has given in his works, and by the great reputation he acquired by his clinical prelections, which attracted students from all parts. His contemporary, John Adam Schmidt, though less generally known than Beer, was superior to him perhaps in originality and genius—a judgment which may be justly extended to their respective successors. To John Adam Schmidt eye-medicine is indebted for some most valuable contributions. He it was who gave the first correct account of *iritidis*, for, strange as it may appear, surgeons were unacquainted with the real nature of that disease until the publication in 1801 of his work on "Iritis and Secondary Cataract occurring after Operations for Cataract."*—Indeed, we may say that we owe most of our knowledge of the internal inflammations of the eye to the labours of German surgeons, though it must be confessed that they have occasionally refined too much in their distinctions. Mr. Ware, in his Treatise on the "Ophthalmia," never once hints at inflammation of the internal parts of the eye. He does not even seem to be aware of the fact that they are subject to inflammation—"a remarkable illustration," says Mr. Lawrence, "of the difference between seeing and observing disease, or rather a proof that the most obvious things will not be seen, unless persons know what to look for."

For the ophthalmic clinic in the General Infirmary at Vienna, there are two wards, each containing ten beds. The cases best adapted for clinical instruction are chosen by the assistant from among the daily general admissions. There is a museum and library attached to the ophthalmological institution. The library contains about 2000 volumes on medicine and surgery in general, but chiefly on eye-medicine.

Great pains are taken in the instruction of the students. Rosas gives two courses of lectures in the year: the one from the beginning of October to the end of February, and the other from the 1st of March to the end of July. At the termination of each course the students are examined for the space of two or three weeks. At the Clinic the students are instructed how to examine the patients; they have cases intrusted to them, reports of which they are required to give, and afterwards to draw up from them a complete history of the case, which is deposited in the archives of the Clinic. The visit, clinical instruction, and lecture, occupy three hours every day except Saturdays and Sundays. The hours are from 10 a.m. to 1 p.m.

Jaeger is Professor of Ophthalmology in the Josephine Academy—an institution for the instruction of those intended for the military service. Jaeger's public clinique is, therefore, in the military hospital. There are

* Ueber Iritis und Nachstaar nach Staar-operationen.

set apart for the purpose ten beds for males and ten for females, and an operating theatre. Jaeger has also a polyclinic at his own house, to which he readily and kindly admits visitors.

The private courses of the operative surgery of the eye, given by Jaeger and Rosas, are much attended by strangers, who go to Vienna for the purpose of visiting the ophthalmic school. Jaeger's courses are the more esteemed.

In speaking of eye-medicine in Vienna, the name of Burkard Eble, an army surgeon, must not be passed over in silence. His work on the Structure and Diseases of the Conjunctiva, published in 1828, and others which have appeared since, together with that at the head of this article, keep up the reputation of the school whence they emanated.*

Since the establishment of the Vienna School of Ophthalmic Medicine, the eye-clinic has become an essential part of the medical curriculum of every German University; and, indeed, the very language of Germany is so interwoven with the literature of eye-medicine, that he who would claim to be an authority in the latter must be well acquainted with the former.

The most celebrated names in connexion with German ophthalmic medicine and surgery, in addition to those just mentioned, are Richter, Himly, and Langenbeck of Göttingen; Walther of Munich; Graefe and Juengken of Berlin; Ammon of Dresden; Fischer of Prague; Fabini of Pesth; Benedict of Breslau; Beck of Freibourg; Chelius of Heidelberg; Ritterich of Leipzig—a long list, which, however, it would not be difficult to enlarge by other names of just celebrity.

In Britain the diseases of the eye have always attracted a considerable share of attention. Indeed, English surgeons have contributed as much to the real advancement of eye-medicine as those of any other nation. The establishment of the London Ophthalmic Infirmary has been an example, well followed up in many other parts of the kingdom. We may instance in particular the Eye Infirmary of Glasgow as being the source whence has emanated the standard work of Mackenzie, although this is not its sole recommendation; the systematic and efficient mode in which it is conducted, beneficial alike to the patients and students, calls for all applause.

In Italy, considerable attention has been bestowed on the subject of diseases of the eye, and in the schools there are ophthalmic clinics similar to those in Germany. Italian ophthalmological literature boasts of the works of Scarpa, Quadri, and others.

The name of Maunoir advantageously represents ophthalmology in Switzerland. Until very recently the School of Medicine of Paris, so famous for medical science in general, offered no adequate opportunity for the study of ophthalmic medicine and surgery, and French medical literature, so rich in other respects, boasted of no work of any merit on diseases of the eye. *On a changé tout cela*, however; and now, what from the labours of French surgeons themselves, and those of Germans and Italians settled among them, there are cliniques for the diseases of the eye, lectures on the diseases of the eye, and new books numberless on the diseases of the eye. The most recent of these works we intend to examine in this article.

* We regret to state that Dr. Eble is very recently dead.

Here we may allude to a contribution recently made to ophthalmoscopy—we mean the mode of ascertaining from the images, of a candle for instance, reflected by the eye, the state of the lens as regards its transparency or non-transparency, when the ordinary mode of examination may prove insufficient. Though this catoptrical mode of exploring the eye has come into notice only since M. Sanson published his ingenious observations on the subject, and though we believe these observations to be quite original on the part of M. Sanson, it is but justice to Professor Purkinje, of Breslau, to mention that he had, in 1823, made similar ones, and not only made a similar application of them, but accurately described them and illustrated them by figures in a small work entitled “*Commentatio de examine physiologico organi visus et systematis cutanei quam die xxii Decembris, MDCCCXXIII, &c., publice defendit J. E. Purkinje, assumto socio G. Kraus. Vratislav. c. tabul. lith.*” 8vo, pp. 58.

Before concluding this historical sketch it will not be out of place to notice the first introduction of, and make a few remarks on, certain remedies of acknowledged efficacy in ophthalmic medicine.

1. Mercury. The use of mercury in diseases of the eye appears to have been long known, but, it must be confessed, only in a vague and general manner; and although it appears that in 1799, Beer (having been led to employ mercury in inflammation of the eye and its appendages on the recommendation of Warner), was acquainted in some degree with the power of mercury in obviating the effects of iritis, it is to be remembered that as the nature of iriditis had not then been properly defined, the indications for the use of mercury must have been very vague. We cannot, therefore, but consider ourselves indebted to Dr. Farre and Mr. Travers for having fixed particular attention on calomel and opium as a remedy in iritis.

2. Belladonna, Hyoscyamus, &c. The effect of certain vegetable substances in dilating the pupil appears from Pliny to have been known to the ancients, and advantage taken of it in operating on the eye. Darwin (*Zoonomia*, vol. iii., pp. 132—*London*, 1801,) suggests that the power of belladonna in dilating the pupil might be of advantage in some ophthalmiæ. The late Professor Himly, of Göttingen, however, was the principal means of drawing attention to the various useful applications of the artificial dilatation of the pupil in the diagnosis and treatment of diseases of the eye.

3. Disulphate of quinine. In 1763, Dr. Fothergill and Dr. Fordyce recommended a decoction of powdered bark as a remedy for scrofulous conjunctivitis. In the year 1828 Dr. Mackenzie was led by accident to try quinine in a very obstinate case of scrofulous ophthalmia. The patient, a child, was cured in a few days. Dr. M. afterwards derived advantage from the remedy in scrofulous corneitis and ophthalmia tarsi. Mr. Wallace of Dublin published in the same year a favorable account of the effects of cinchona in cases of iritis occurring after typhus fever; and Mr. Middlemore, of Birmingham, has communicated to the public the results of his employment of quinine in scrofulous iritis. “The treatment of the scrofulous ophthalmiæ with sulphate of quinine,” says Mackenzie, “is an improvement in ophthalmic medicine, perhaps scarcely less important than the treatment of iritis with mercury.” (p. 363.)

The remarks we have to make on the works before us we shall arrange under the three heads of Anatomy, Physiology, and Diseases of the Eye:

I. ANATOMY OF THE EYE. In the general notice of Dr. Mackenzie's work in our last Number, we alluded to the Anatomical Introduction by Mr. Wharton Jones. M. Carron du Villards devotes seventy pages to a Physiological Anatomy of the Eye and its appendages. Although M. C. du V. pretends to be very elaborate and precise in the anatomy of the eye, and promises further great things on the subject, it must be confessed that the lengthy sketch before us is very indifferent. It deserves no particular notice—certainly no commendation. M. Rognetta does not give any set anatomical description of the eye, but there are interspersed throughout his book a number of anatomical and physiological observations. M. Jeanselme, the editor of M. Velpeau's lectures, judiciously gives, by way of introduction, a long extract from M. V.'s *Traité d'Anatomie Chirurgicale* on the distribution of the blood-vessels of the eye. Dr. Von Ammon, in his *Essay on Iritis*, devotes the first of six chapters to the anatomy and physiology of the iris. We can here notice only one or two of the more important points in the anatomy of the eye.

Mr. Wharton Jones distinguishes in the cornea three principal layers—the proper substance of the cornea in the middle, the conjunctiva corneæ in front, and the membrane of the anterior chamber of the aqueous humour behind. He denies that the proper substance of the cornea is composed of laminæ, but describes it as consisting merely of interweaving bundles of fibres. The appearance of a lamellar exfoliation, which the cornea sometimes presents in disease, is by some considered a proof of its lamellar structure. M. Rognetta, however, well remarks (p. 212), that the same argument has been advanced in regard to the structure of bone, and that the observations of Scarpa have proved that the structure of bone is not lamellar any more than that of the cornea.

“The conjunctival layer of the cornea, not admitting of being separated in a distinct form like the sclerotic conjunctiva, may be viewed as composing, with the proper substance of the cornea, a fibro-mucous membrane. What of the conjunctival layer of the cornea can be separated by the action of boiling water consists of a fine epithelium, together with a substance which may be compared to the corpus mucosum of the tegumentary system.....What is called the membrane of the anterior chamber of the aqueous humour or membrane of Descemet, lines the whole posterior surface of the cornea.....Its free surface is invested with a very delicate epithelium, composed of microscopical nucleated corpuscles.

“The three structures of the cornea just described have a close vascular connexion with each other. Individually, the conjunctival layer has a direct vascular connexion with the conjunctiva, the proper substance with the sclerotica, and the membrane of Descemet with the iris. Around the margin of the cornea, the vessels of all these parts communicate.” (*Mackenzie*, p. 21.)

Henle has found epithelic corpuscles on the corresponding surfaces of the sclerotica and choroid, a confirmation, he thinks, of the opinion that a serous membrane (*arachnoidea oculi*) invests those surfaces. This opinion Henle attributes to Arnold, but it is one of long standing. In this country Wardrop revived it, and it is to be found expressed in the

first edition of the Dublin Dissector, published some ten or twelve years ago, that is, four years before Arnold's work was published.

Viewed externally, the transverse diameter of the cornea is a little longer than the vertical; hence the circumference of the cornea is oval, and this in the strict sense of the word, for towards the temple it is smaller than on the side next the nose.

"Not exactly in its centre, but a little towards the nasal and upper side, the iris is perforated by the pupil..... The optic nerve enters the posterior part of the eyeball about one fifth of an inch to the nasal side of its axis." (*ib.*)

The above are data calculated to assist in solving a question, suggested by M. Rognetta as one which might possibly occur in forensic medicine, viz., "an eye detached from the body being given, to determine to what side it belonged."

"Place the eye on a table," says M. Rognetta (p. 197), "with the cornea towards the observer. Then determine, by the exact measurement of the diameters, the upper side of the corneal disc: this side always corresponds with the short diameter. This side is to be placed uppermost, as in the natural state." M. R. here comes to a conclusion too hastily; this observation can only determine that one of two sides must be the upper; but to determine which, the position of the pupil must be examined, and then we may, with M. R., "regard the insertion of the optic nerve. This nerve is not inserted in the centre of the sclerotica, but rather below and towards the nose." "Now," continues M. R., "a little reflection will tell us that if the insertion of the nerve of the eye in question is found nearer the right side of the observer than the left, the organ belongs to the left orbit, and *vice versa*." (p. 197.) No! M. Rognetta. The organ belongs to the *right* orbit, and *vice versa*.

In our Number for October last, there will be found, among our selections (p. 580), a paper on the Physiology of the Iris, by Dr. Bolton, of Baltimore, extracted from the American Medical Intelligencer for 1838.

Dr. Bolton concludes that the idea of a dilator muscle of the pupil in the iris is incompatible with some of its most important phenomena. "Now," says he, "if we admit the radiating fibres to be elastic, we have an easy and satisfactory explanation of all the phenomena..... When the sphincter is passive, the pupil is given up entirely to the power of the elastic fibres of the iris which dilate it." In proof of an inherent elasticity of the iris tending to keep the pupil dilated, Dr. B. adduces the following experiment: Stretch the iris towards the pupil, and it will be found to resist, and to return to its former position immediately on being relieved from this state of tension. This is all true; but Dr. B. should not have stopped here, but should have ascertained whether, when the pupil is dilated, by inserting a closed forceps into it, and then allowing the legs of the forceps to separate, the pupil has not, in consequence also of the elasticity of the iris, a tendency to return to its former state. This is an experiment which was described by Mr. Wharton Jones in the Edinburgh Medical and Surgical Journal for January, 1834.

Dr. B. objects that the dilated state of the pupil can scarcely be an active state, which it must be if a dilator muscle is admitted, considering that in amaurosis the muscle must remain in the state of contraction from

twenty, thirty, or forty years. This, it must be confessed, is a difficulty attending the admission that the great dilatation of the pupil is an active state. But a similar difficulty would exist in regard to the view that the only active state of the iris is that in which the pupil is more or less contracted, supposing it was well founded, which it is not.

As far as elasticity is concerned, Dr. B.'s view of the mode of dilatation of the pupil is the same as that held by those who consider that the contraction of the pupil is owing to an erectile structure of the iris. Thus, M. Rognetta, in speaking of the action of belladonna in the dilatation of the pupil, says: "If it is true that the whole arterial system falls into a sort of sunken state from the action of belladonna, it is evident that the very vascular organs are those which will be most subjected to the effects of this substance. The iris in fact experiences a very strongly marked relaxation. The elasticity of the tissue of the iris being no longer counteracted by the arterial erethism, that membrane collapses, retracts, and the pupil thus becomes dilated. It is commonly said," continues M. Rognetta, "that belladonna paralyses the iris. That is not correct; true paralysis of this partition is not accompanied by dilatation of the pupil; its substance is then, on the contrary, relaxed and vacillating like any other paralysed tissue." (p. xv.) This observation is correct; but it is incompatible with his opinion that the contraction of the pupil depends on an erectile structure, and its dilatation on the mechanical retraction of the elastic tissue set free by the subsidence of the erethism.

The views of both Dr. Bolton and M. Rognetta are one-sided. We believe the following extract from the English author already quoted, will be found a correct account of the state of the case as far as is yet known. According to it, it is to be remarked, that belladonna must produce dilatation of the pupil by directly or indirectly exciting to contraction the radiating fibres of the iris.

"Besides blood-vessels and nerves, in which the iris is very rich, another tissue enters into its composition, which, in order to explain the motions of the iris, is admitted to be muscular, though it does not exactly resemble even the unstriped organic muscles of other parts, much less the characteristically striped fibres of common muscles. The iris, it may be remarked, being suspended in a watery medium, less power will be required to move it than if it were suspended in air, in consequence of the resistance of its own weight being thus in a great measure removed. The notion of the structure of the iris being erectile is disproved by all the phenomena attending its motions. It is certain that when there is dilatation of the pupil, the iris is as much in an active state as it is when there is contraction of the pupil. In the former case, the larger ring of the iris is contracted in the direction of its radius, and in the latter case the smaller ring is circularly contracted. It is also certain that the state of relaxation of the iris is that in which the pupil is neither much contracted nor much dilated, a state in which the pupil always is sometime after death, and to which, in consequence of an elasticity which the tissue of the iris possesses, it has a constant tendency to return after the contracting or dilating force has ceased to act." (*Mackenzie*, p. xxv.)

Just twenty years ago, Dr. Jacob, of Dublin, made known the discovery of a very delicate membrane situate between the retina and choroid. Though Dr. Jacob both delineated and described the membrane well, it was not generally admitted; it and two other structures, viz., the membrane of the pigment and the tunica Ruyschiana being fre-

quently confounded. Since the publication of Mr. Wharton Jones's paper, however, on the Membrane of the Pigment, in the Edinburgh Medical and Surgical Journal for 1833, correct views of these three parts of the eye have been gradually making way. "Anteriorly," says this writer, "the choroid may be separated into two layers; but towards the back part of the eye such a separation is impossible. The division of the choroid into two layers was first mentioned by Ruysch, whose son, Henry, proposed the name of *tunica Ruyschiana* for the inner, leaving to the outer the name of *choroid*." Such is the *tunica Ruyschiana*. The membrane of the pigment, known to John Hunter, Carlo Mondini, and Kieser, was more completely investigated and extremely well described by Francesco Mondini in 1818. Notwithstanding this, Döllinger appears to have confounded it with the membrane of Ruysch, and others confounded it with the membrane of Jacob. Mr. Wharton Jones, by discovering its remarkable microscopical appearance, has secured for it a distinctive character. The microscopical appearance of the membrane of Jacob having also been delineated by him, and more recently by Professor Valentin, of Berne, there is now no excuse for denying the membrane of Jacob, but want of dexterity to demonstrate it.

The intimate structure of the retina is thus described, according to the most recent observations :

"The primitive fibres or tubules of the optic nerve are entirely microscopical. They are similar to those constituting the substance of the brain, with which they are, on the one hand continuous, and, on the other, with similar fibres in the retina. In addition to its blood-vessels, and the delicate cellular tissue supporting them, the retina presents three different elements in its structure, forming as many layers. The outermost is a mucus-like substance, consisting of granules or globules arranged in the manner of pavement. The next or middle layer is formed of the radiating expansion of the primitive fibres or tubules, continued from those of the optic nerve. The third or innermost layer, which is found over the whole inner surface, the entrance of the optic nerve not excepted, consists of upright cylindrical papillary bodies, which project through the vascular layer, and into which the fibres of the middle layer, suddenly bending inwards, are supposed to pass. The cylindrical papillary bodies are difficult of demonstration, as they are very brittle, readily separate from the retina, and become changed. The fibrous layer of the retina is most easily shown in the rabbit." (*Mackenzie*, p. xxviii.)

A remark or two more in regard to the surfaces of the aqueous chambers, and we have done with the anatomy of the eye.

In his Chapter on the Anatomy of the iris, Dr. von Ammon says that he has in no case been able to observe the serous membrane on the posterior surface of the iris. We are surprised at this, for a membrane lining the posterior chamber of the aqueous humour is more demonstrable than one lining the anterior chamber throughout. The membrane on the posterior surface of the iris was, many years ago, described and delineated by Dr. Jacob, of Dublin, in the Medico-Chirurgical Transactions.

"The free surface of the membrane of Descemet is invested by a delicate epithelium. Henle has found an epithelium neither on the surfaces of the iris nor on the anterior wall of the capsule of the lens, a new proof, says he, against those who think the whole anterior and posterior chambers are lined by a serous sac. Valentin, however, describes an epithelium, both on the anterior and posterior surfaces of the iris; and I can add that I have found epithelial corpuscles

on the anterior surface of the anterior wall of the capsule of the lens in a lamb's eye." (*Mackenzie*, p. xxxi.)

Dr. von Ammon broaches a new doctrine in regard to the secretion and absorption of the aqueous humour, viz. that the serous membrane investing the anterior surface of the iris is villous, and secretes the aqueous humours, whilst the absorption of it is the work of that part of the serous membrane of the anterior chamber lining the cornea.

M. Rognetta appears to have a favorite notion that the tears are derived principally from the aqueous humour oozing through the cornea.

He harps upon this in many different parts of his book, and is very sore at certain remarks which Velpeau appears to have made in regard to it. One argument employed by M. Rognetta is, that the lachrymal gland is too small to furnish all the tears. Taking the upper and lower masses of the lachrymal gland with their ten or twelve ducts, it seems to us, that in proportion to its secretion, the lachrymal gland is as large as any other.

II. PHYSIOLOGY OF THE EYE. The following remarks on this subject have been suggested chiefly by a perusal of the section on Vision, in Part V. of Müller's *Elements of Physiology*, Dr. Alison's paper on Single and Correct Vision, by means of double and inverted images on the Retinæ, in the *Transactions of the Royal Society of Edinburgh*, Mr. Wheatstone's "Contributions to the Physiology of Vision," in the *Philosophical Transactions*, Part II. for 1838, and several papers in Müller's *Archives*, by Professors Volkmann and Mile.

Passing over the first two Chapters of Müller's Section on Vision, which treat the one of "the Physical Conditions of Images in General," and the other, "of the Eye as an Optical Instrument," we come at once to Chapter III. which is on "the Actions of the Retinæ, Optic Nerve, and Brain in Vision," a part of the subject of great importance, not only in a philosophical but also in a practical point of view. By adopting this arrangement, we shall have space and opportunity to bestow that attention on the memoirs of Dr. Alison, and of Mr. Wheatstone, which their value and importance demand.

"All the phenomena," says Müller, (Baly, 1162,) "investigated in the preceding chapter, are explicable by reference to the structure of the eye as an optical instrument,—that is, by the form and arrangement of the transparent media in front of the retina. There are a great number of other phenomena, however, of which the structure of these parts affords no explanation, but which are the results of vital properties of the retina, and of the cooperation of the sensorium in the act of vision. To these belong not merely the act of sensation itself, and the perception of the changes produced in the retina, as light and colours, but also the conversion of the mere images depicted on the retina, into ideas of an extended field of vision,—of proximity, and distance,—of the solidity (in the geometrical sense) and size of objects. To this class of phenomena belong also the effects of the reciprocal action of different parts of the sensitive apparatus on each other, and many phenomena in the retina, either not excited by light at all, or not by its immediate action."

In studying the physiology of vision, it is of great consequence to have a clear idea at the outset, of what are strictly physical, and what are strictly physiological questions; for the subject of vision has been much embroiled by the attempt which has been often made to explain purely physiological points on physical principles.

One of the most difficult problems in physiology is that relative to the respective influence of the retina and sensorium in vision.—“Where,” asks Müller, “is the state of the retina perceived;—in the retina itself, or in the brain?”

“In the present state of our knowledge,” answers Müller, “it is utterly impossible to solve this problem.

“However the above question may be decided, it is at all events certain, that even after the retina and external portion of the optic nerve are lost (as after extirpation of the eye), the internal or central portion of the organ of vision is capable of exciting not merely sensations of light, but also the same ideas of a field of vision, in which images are perceived as when the retina is present. . . . These facts (lights, figures, &c., floating in front of the orbit from which the eye has been removed) would seem to prove that the affections of the fibres of the optic nerve are communicated to the brain before they give rise to the sensation of a field of vision; and, in that case, we must admit that each minute division of the retina is represented in the sensorium by a corresponding nervous fibre, though this cannot be demonstrated anatomically.

“The mode of action of the peripheral and central parts of the apparatus of vision upon each other is, therefore, at present, involved in much obscurity; and we must rest satisfied with a knowledge of the fact, that the order of the images in the field of vision depends upon the relative position of the affected parts of the retina.” (*Baly's Müller*, 1165.)

We shall confine our further remarks on Müller's chapter on the “action of the retina, optic nerve, and sensorium in vision,” to two points, viz. “inverted images, and erect vision,” and “single vision with the two eyes,” which have always been a sort of stumbling-block in the physiology of vision. The memoir of Dr. Alison, we think, is calculated to throw some light on the former point, and that of Mr. Wheatstone on the latter.

Müller's observations on the subject of inverted images and erect vision, are—since the image and the affected parts of the retina mean the same thing, the question physiologically expressed is this:

“Are the minute divisions of the retina affected in vision perceived by the sensorium in their natural relation to the object? The view which I take of the question,” adds Müller, “and which I proposed in my work on the physiology of vision, is, that even if we do see objects reversed, the only proof we can possibly have of it is that afforded by the study of the laws of optics; and that, if every thing is seen reversed, the relative position of the objects of course remains unchanged.” (*Baly*, 1171.)

“The difficulty,” says Alison, “which is presented by the inversion of the images on the retina is, I think, most correctly expressed thus: the sensations both of sight and touch obviously differ from one another in position, and by doing so, both convey to us intimations of the situation of external objects. But the judgments which we form of the relative position of objects, or of the parts of an object, from the relative position of the impressions which they make on the sensitive surface of the *retina*, are just the reverse of those which we form of the relative position of objects or their parts, from impressions made on the sensitive surface of the *skin*. Thus, if two impressions are made on the upper and lower portions of the eyeball, and felt through the fifth nerve, the inference immediately drawn is, that the upper impression is from a higher object, and the lower from a lower; but if two impressions are made in the upper and lower part of the retina, and felt through the optic nerve, the inference is, that the impression on the upper part is from the lower object, and that on the lower part, from the higher. Why this difference should exist, is the point in question.”

These observations of Alison, clearly prove the unsatisfactory nature of the view above expressed, which, by the way, is not that of Müller

only. As to the explanation of erect vision with inverted images on the retina, by reference to what is called the "Law of visible direction," we would remark, that the perception of the impression on the retina is one thing, and the direction in which the rays of light are transmitted to the retina another, necessarily associated, indeed, but not essentially related.

"The explanation which seems to me satisfactory," says Alison, "of the erect vision by inverted images, was first suggested to me by Mr. Dick, veterinary surgeon, and turns on the alleged fact, that the course of the optic nerves and tractus optici is such, that impressions on the upper part of the retina are, in fact, impressions on the lower part of the optic lobes, *i. e.*, of the sensorium, and impressions on the outer part of the former are on the inner part of the latter, and *vice versa*."

This view of the matter, which also appears to us satisfactory, is supported by the following considerations:—The experiments of Flourens repeated before and reported on by Cuvier, are generally regarded as affording satisfactory evidence that the sensations of the eye reside in the corpora quadrigemina.

"Our business is," says Alison, "to learn in what manner those fibres of the tractus optici, which can be distinctly traced into the corpora quadrigemina, are there implanted; and when we trace the course of these fibres in the brains of the mammalia, (hardened by alcohol,) whether they descend on the corpora quadrigemina from the thalami, or pass more directly backwards below the corpora geniculata, it seems to me quite obvious, that they first turn inwards, and then enter the corpora quadrigemina from above downwards, and are so expanded over the superior of these bodies (the nates), that the outer portions of the tractus pass over to the inner part of the nates, and the upper portions of the tractus pass down to the lower part of the nates. Now, there is no such contortion or involution of the nervous filaments of the fifth, or of any other nerve of the symmetrical system, where it is implanted in the cerebro-spinal axis, and so constituted a nerve of touch; and from this I think it clearly follows, that although the impressions made on the *retina*, by the different parts of an object, are situated in regard to one another in the *inverse* order of those made on the surface of the body, yet the impressions made, *through the retina* and optic nerves, on the *cerebro-spinal axis*, are *in the same order* as those made through the nerves of touch, on that central portion of the nervous system, on which the sensibility of all nerves depends; and therefore, that the notions which we form of the relative position of the parts of objects, by the senses of sight and of touch, will naturally correspond."

In opposition to the view now stated, the following observations from Müller might be advanced:

"The inversion of objects," says he, "being a thing of which we can never become conscious in ourselves, it is not possible that nature has made in the brain, or elsewhere, any provision for the correction of the error, which would never have been known but for the institution of optical enquiries. The decussating course of the optic nerves cannot be adduced as an explanation of erect vision, since the decussation is only partial." (*Baly*, 1179.)

This is, no doubt, true; but still we reply, the decussation along with the twisting of the optic nerves may be adduced as an explanation. "If it were possible," continues Müller, "to produce an image of an object upon the retina without the aid of light; for instance, by immediate contact, the image would in that case not be inverted." The image on the retina would not be inverted; but, on that very account, the mind would acquire the idea that the impressing object was inverted.

"If it were possible," Müller farther continues, "to see the same object simultaneously by means of luminous rays from without, and by immediate impression upon the retina, the images produced in these two ways would appear to lie on opposite sides. This can, in fact, be shown experimentally. If we press upon the retina with the finger through the sclerotica, a spectrum produced by the immediate impression of the finger will be perceived, while at the same time the finger may be seen through the medium of the external light. The two images will appear at opposite sides. If, while the eyes are closed in the dark, we press upon what appears to us to be the upper part of one eye with the finger, which is, therefore, seen above, the spectrum produced by the pressure becomes visible below; if the pressure be made upon the lower part of the retina, the spectrum appears above; if the right side of the retina be the seat of the pressure, the spectrum appears on the left side, and *vice versa*." (*Baly*, 1172.)

In these experiments it is different parts of the retina which are excited. The image of the finger produced through the medium of the external light falls, when the finger is held above, on the lower part of the retina; and in consequence of the constitution of the optic nervous apparatus, the finger is seen where it is. In the case of images by pressure, they are seen in the place where they would be if the impressing agent were sent in the ordinary manner, the optic nervous apparatus being arranged and constituted in conformity with the circumstance, that it receives impressions, not by the direct contact of the object, but, through the intermedium of an agent which is conveyed by an apparatus corresponding to its peculiarities, in a manner the inverse of what takes place in the perception of objects by immediate contact. And it is to meet this peculiarity that the optic nerves, as has been already said, are so disposed by semi-twisting on their axis at their origin, and semi-decussation, that an affection of the upper part of the retina is communicated to the lower part of the cerebral portion of the optic apparatus, and so forth. We think it of importance to remark here, that, according to Müller's exposition of the structure of the compound eyes and mode of vision of insects and crustacea, it is obvious that the image painted on the retina of those animals will not be *inverted* and *reverted*, but like the image in a mirror, *erect*.

We now come to single vision with two eyes; or, in other words, a single visual perception from two retinal images.

Some physiologists have sought to explain this by supposing, that we really do not employ both eyes simultaneously in vision, but always see with one only at a time. Müller rejects this opinion, and maintains what indeed is generally admitted, viz., that single vision results only when certain parts of the two retinæ are affected simultaneously; if different parts of the retinæ receive the image of the object, it is seen double. The parts, the simultaneous affection of which is found to yield a single perception, are called identical or corresponding, and are the various points of the right and left sides of the two retinæ equally situated in reference to the axis of the eyes.

"The cause of the impressions on identical points of the two retinæ," says Müller, "giving rise to but one sensation, and the perception of a single image, must lie in the organization of the deeper or cerebral portion of the visual apparatus; it must, at all events, depend on some structural provision, for it is the property of the corresponding nerves of the two sides of the body in no other

case to refer their sensations as one to one spot. It is exceedingly improbable that the identical action of the corresponding parts of the two retinæ is the result of a certain habituation, or of the influence of the mind." (Baly, 1196.)

After enumerating the many attempts which have been made to explain this remarkable relation between the eyes, Müller (Baly, 1200) repeats his conclusion, that the cause of the single sensation, excited by impressions on identical points of the two retinæ, must be some organic or structural provision. "There are," he says, "many theories, involving the supposition of such a structure, which would account for the phenomena; but not one of these theories can be proved to be the correct one, and, with regard to several of them, it can be shown that they are certainly erroneous."

In reference to the opinion that the perception of the number and position of visible objects is acquired only by association or custom, Dr. Alison remarks, that this view of the subject had been previously fully considered and completely set aside by Dr. Reid, at least in reference to single vision by two images on the retinæ, and that, not by any abstract reasoning, but by appeal to facts.

"From the time," says Dr. Reid, "we are capable of observing the phenomena of single and double vision, *custom* makes no change in them. I have amused myself," he adds, "with such observations for more than thirty years; and in every case, wherein I saw the object double at first, I see it so to this day, notwithstanding the constant experience of its being single. In other cases, where I know there are two objects, there appears only one, after thousands of experiments. Effects produced by habit must vary, according as the acts by which the habit is acquired are more or less frequent; but the phenomena of single and double vision are so invariable and uniform in all men, and so exactly regulated by mathematical rules, that I think we have good reason to conclude that they are not the effect of custom, but of fixed and immutable laws of nature."*

Dr. Alison concludes, that *images formed on corresponding points of the retinæ of the human eyes, and on those only, naturally affect our minds in the same manner as a single image formed on the retina of one eye*, is an established fact, not to be explained by experience or association; and, not being *necessarily* an ultimate fact, affords a fair subject of physiological enquiry.

Dr. Alison then proceeds to illustrate this position by anatomy, in a manner much the same as is done in the work of Müller. The latter also answers the objections to the doctrine of corresponding points of the retinæ in a similar way with the former author.

The following is the opinion recently given by Professor Volkmann, one of the best modern authorities on the physiology of vision in Germany :

"Mile (Archiv, 1838, p. 387,) incorrectly says that single vision is only the effect of habit. The theory, that identical places of the two retinæ must necessarily see single, different places on the contrary must see double, has been recently completely confirmed by the important observations of Hueck (Die Achsendrehung des Auges, Dorpat, 1838, 4to.) Hueck affirms that the image of a perpendicular line immediately separates into a double image, the lines crossing, when we, by proper pressure of the finger, roll somewhat one eye. This assertion I can confirm from my own experiments. The business of the

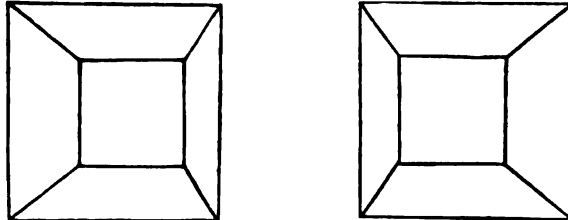
oblique muscles is, on every motion of the head, to maintain the original position of the eyes." (*Volkmann, in Müller's Archiv*. No. iii. 1839, pp. 240-1.)

Against the doctrine of corresponding points of the retinæ Mr. Wheatstone has lately offered very powerful objections. He has shown, in a manner at once convincing and ingenious, that in viewing an object of three dimensions, i. e., having length, breadth, and thickness, the perspective projections upon the two retinæ differ according to the distance at which the object is placed before the eyes; if it be placed so distant, that to view it the optic axes must be parallel, the two projections are precisely similar; but if it be placed so near, that to regard it the optic axes must converge, a different perspective projection is presented to each eye; and these perspectives become more dissimilar as the convergence of the optic axes becomes greater. Notwithstanding this dissimilarity between the two pictures, which is in some cases very great, the object is still seen single, though it is to be remarked not exactly resembling either of the two pictures on the retinæ.

"It being thus established," says Mr. W. (p. 373), "that the mind perceives an object of three dimensions by means of the two dissimilar pictures projected by it on the two retinæ, the following question occurs: What would be the visual effect of simultaneously presenting to each eye, instead of the object itself, its projection on a plane surface as it appears to that eye?"

For this purpose Mr. Wheatstone invented an instrument which he calls a *stereoscope*. It consists of two plane mirrors, with their backs inclined to each other, at an angle of 90° , near the faces of which the two monocular pictures are so disposed, that their reflected images are seen by the two eyes, each looking into one of the mirrors, in the same place.

The observation may be sufficiently well made by viewing the subjoined figures,—the dissimilar perspectives of a truncated four-sided pyramid in the following manner:



Fixing the right eye on the right-hand figure, and the left eye on the left-hand figure, hold between the eyes in front of the nose the board of an octavo book. The two figures will be seen to approximate, and then run into one, representing the skeleton of a truncated four-sided pyramid in bold relief.

"Were the theory of corresponding points true," Mr. Wheatstone remarks (p. 392), "the appearance should be that of the superposition of the two drawings; to which, however, it bears not the slightest similitude."

The above experiment is decisive in the disproof of the doctrine as

stated by Alison, that images formed on corresponding points, and on those only, naturally affect our minds in the same manner as a single image formed on the retina of one eye, but we cannot admit with Mr. Wheatstone that it disproves the doctrine of corresponding points altogether. And we find that in a paper recently read before the Royal Society, Mr. Wharton Jones endeavours to show that, though the correspondence of the two retinæ is not limited to *points*, there are compartments of the two retinæ having certain limits, of which any one point or papilla of the one corresponds with any one point of the other, so far that impressions on them are not perceived separately; or, rather, that of impressions on them one only is perceived at one instant of time. In the same paper Mr. W. J. describes as a principal cause of the perception of relief or of intaglio, in consequence of two dissimilar perspectives of the object impressed on parts of the retinæ within each other's influence, an oscillation of great velocity of the mind between the two. He also conjectures that the central folds of the retinæ have something to do as a condition, central folds being found only in the eyes of man and the quadrumana, the axes of which alone can converge.

"There are some facts," says Mr. Wheatstone (p. 386), "intimately connected with the subject of the present article, which have already been frequently observed. I allude to the experiments first made by Du Tour, in which two different colours are presented to corresponding parts of the two retinæ. If a blue disc be presented to the right eye, and a yellow disc to the corresponding part of the left eye, instead of a green disc which would appear if these two colours had mingled before their arrival at a single eye, the mind will perceive the two colours distinctly, one or the other alternately predominating, either partially or wholly over the disc. In the same manner the mind perceives no trace of violet when red is presented to one eye and blue to the other, nor any vestige of orange when red and yellow are separately presented in a similar manner. These experiments may be conveniently repeated, by placing the coloured discs in the stereoscope,* but they have been most usually made by looking at a white object through differently coloured glasses, one applied to each eye."

Farther on (p. 391), Mr. Wheatstone says:

"Du Tour held that though we might occasionally see at the same time with both eyes, yet the mind cannot be affected simultaneously by two corresponding points of the two images. He was led to this opinion by the curious facts already alluded to in § 14," (the passage just quoted).

The phenomena just described as first observed by Du Tour, and discussed by Müller, under the head of "Alternate Predominance of the Sensations of the two Retinæ," appears to us calculated in some degree to reconcile Mr. Wheatstone's experiments with the doctrine of corresponding points, though we are aware that ingenious observer and experimentalist is of a different opinion. In the communication to the Royal Society already alluded to, Mr. Wharton Jones considers that Du Tour's experiments essentially prove that impressions on corresponding papillæ of the two retinæ cannot be perceived by the mind at the same instant of time, but sometimes the one, sometimes the other, or the

* The experiments under consideration may be readily repeated without the stereoscope, by viewing two different coloured wafers in the manner recommended for viewing the figures given above.—*Rev.*

stronger to the exclusion of the weaker, and that this is one of the causes of single vision with two eyes.

The observations of Professor Volkmann on the sensation which arises when different coloured rays of light fall on the same place of the retina of one and the same eye, though objected to by Professor Mile of Warsaw, we consider of much interest, and think they go far to illustrate what has just been related concerning the sensation arising from different impressions on the two retinæ.

Having allowed light of two different colours to fall on one place of the retina of one and the same eye, Volkmann found to his astonishment that a mixture of colours did not occur. The following are the results of his experiments:—

“When two different colours meet on the same place of the retina of one eye, it is found:

“1. That often only the one of the two colours appears without any transition into a mixed colour.

“2. Even when a certain mixture of the colours does take place, still a perfect middle colour, such as is obtained by the mixture of pigments, never appears, but we see one of the two colours with a tendency to the middle colour, and of a dirty tint.

“3. If we see only one of the two colours, even when it appears clean, it is still not so conditioned as it would be if no other colour was at the same time affecting the retina.

“4. If one colour only is seen, we perceive, *a*, the brighter of the two colours, especially when the brightness is combined with a glistening appearance; *b*, the colour of the object fixed; *c*, the colour to which the attention is directed.”

III. DISEASES OF THE EYE. We propose first to notice, individually, but in a general manner, the different works before us on the Diseases of the Eye, and then to bring together such facts and opinions as appear worthy of consideration, and tending to give additional illustration to any particular point.

In noticing the different works, we shall take them as they stand chronologically arranged at the head of this article.

We are much pleased with the work of Dr. Andræ, both as a literary composition and as giving an excellent elementary view of the subject of ophthalmic medicine and surgery.

To complete Dr. Ammon's large illustrated work on the Diseases of the Eye, a third Part is still wanting. It will contain the congenital malformations of the eyeball, the eyelids, lachrymal organs and orbits. To appear along with this third Part, the author promises a clinical exposition of the whole of ophthalmic pathology. The work, Dr. Ammon informs us, is intended to fill up a blank in ophthalmological literature, felt both by teacher and scholar. It aims at giving not only a systematic delineation of the external appearance of the diseases of the eye, but also figures illustrative of its “pathic histology.” This has been in some degree the object of preceding authors, but it has been effected only to a very limited extent; even Wardrop's work is rather a series of pictures of the external appearances of the diseases than of the morbid anatomy of the eye. The book before us would not bear being criticised as a work of art, but the delineations are sufficiently good for the purpose. It may be observed that it is rare to find eyes well drawn. Well

engraved as Demours's figures are, they are contemptible as representations of diseased eyes, and still more contemptible as drawings. More beautifully executed as Wardrop's figures are than any others, they are still by no means perfect. Even the specimens of eyes given in the first table of S. T. Soemmering's work on the *Anatomy of the Eye* are not accurately drawn. In portraits the expression of the eye is all that is required. Details in the delineation would rather injure the effect in general. In the portraits painted by Peter Denner, however, remarkable for the minuteness of detail and for the striking representation of texture, the eyes are delineated with a degree of accuracy and truth altogether unique.

While on the subject of artificial representations of the diseases of the eye, we would allude to the series of wax preparations belonging to the Ophthalmic School of Vienna, modelled from nature by Hofmayer, under the superintendency of Professor Rosas. They are very beautiful and expressive. Each cost seven guineas; so that for the whole collection of sixty, the Austrian government paid 420 guineas.

Though the particular history of the morbid preparations represented in Dr. Ammon's work is not given, but only a general description, the book will always be valuable as one of reference. The morbid changes which occur in the eyes of the lower animals, and what can be ascertained by experiments on them, are frequently called in to aid the explanation of points in the pathology of the human eye.

The indefatigable author of the above work, as will be seen from our list, has also published a Monography on Iritis, to which was awarded the prize offered by the Society of Practical Medicine of Paris.

Dr. Carron du Villards offers his book as a purely practical one to practitioners and students; and Dr. Rognetta tells us his is written in a style almost aphoristical, it having been his wish to economise space and time, without, however, being obscure or omitting anything essential.

Men of information, as Carron du Villards and Rognetta certainly are, their works appear to have been thrown together rather than maturely digested. Both have brought to the task a certain amount of theoretical knowledge and practical experience; but it must be confessed that the former, without being behind his rival in science, evinces more of the knowledge of detail, and, as far as can be judged from the mere perusal of a book, more of the practical tact indispensably necessary for the successful practice of the surgery of the eye. Better informed of the doings in other countries than their adopted countrymen generally are, both M. Carron du Villards and M. Rognetta, nevertheless, too often misunderstand what they are speaking of, and consequently are guilty of over-hasty criticisms, especially against the Germans. So much is this the case, that a German reviewer retorts on Rognetta, and, we think, justly, "*Ars autem nostra non habet osorem nisi ignorantem.*" In regard to Carron du Villards, the same German reviewer remarks that he deserves blame for neglecting to acknowledge the source whence he has derived much that is contained in his book; "*a detestable practice.*" he adds, "*becoming more and more common, especially among the French.*"

The part of Professor Chelius's work before us is published both in the German and French languages. The French translation is, with the ap-

probation of the author, by MM. Ruef and Deyber, of Strasbourg. The volume treats of the Organic Diseases of the Eye.

On account of their fixedness of character, organic diseases admit of being more easily and accurately described than the more protean dynamic diseases. Professor Chelius, in his well-known Manual of Surgery, does not enter into the diseases of the eye and ear, saying in his preface: "That I have not taken up the diseases of the eye and ear will not be brought against me as an objection, for the field of ophthalmic medicine and surgery has been so much extended as to require a particular work, and as I, like many other teachers, give separate courses on the diseases of the eye and ear." To those who are acquainted with the Professor's Manual of Surgery, it is enough to say that the volume on the Organic Diseases of the Eye before us is composed in the same style, that is, it is a judicious and comprehensive abstract of the present knowledge on the subject, and as such, well adapted to the purpose for which it is published, viz., for the use of students attending the author's lectures.

Dr. Eble's work on the so-called Contagious or Egyptian Ophthalmia, was written to compete for the prize of 1000 roubles, offered, in 1836, through the Society of German medical men at St. Petersburg, by a gentleman who had himself suffered from the disease. There was only one other work sent in, but the prize was given to neither. We have already had occasion to consider Dr. E.'s views regarding the Egyptian ophthalmia. We may mention that his opinion, that this disease is a mere modification of catarrhal ophthalmia, was objected to as a preconceived notion, and was what led principally to the refusal of the prize to it. The reporters admitted the excellence of the work in many respects. We believe it to be the most complete monography on the subject. There is a point which appears to us not always to be taken into account in the adjudication of prizes, and that is, whether the knowledge of the judges on the particular point, supposing their perfect impartiality, be such as to enable them to determine correctly.

Of Mr. Middlemore's Introductory Lecture we may remark that it contains, at pp. 10-11, an explanation of the method he has adopted to observe and describe the visible external symptoms of the diseases of the eye. The diseases of the eye form a good subject on which to exercise young men in the art of observing; and the method chalked out in the address before us is well worthy of being followed.

Passing over the work of Mackenzie, which we noticed in a general way in our last Number, we come to the manual which M. Jeanselme has composed from the lectures and published works of M. Velpeau. M. J. explains his double object to be "to make known the views regarding the diseases of the eye professed by M. Velpeau, and to initiate students and young practitioners into the practice adopted by that surgeon."

Of the general spirit of M. Velpeau's work, for we must view it as his work, we can speak in no other than terms of unqualified disapprobation. Not so much because he inculcates bad practice, but because, modifying the nomenclature in common use, and misrepresenting the current doctrines, he arrogates to himself the character of delivering new and more correct views of the pathology and therapeutics of the eye.

When he endeavours to vindicate France from the reproach often made to her, that she has contributed but little to the advancement of ophthalmology, we, to some extent, go along with him; but when he speaks as he does, in a somewhat contemptuous manner, of some of our most esteemed medical practitioners and authors as mere *oculists*, we cannot but regret the ignorance, wilful as it cannot but be, which should have allowed M. Velpeau to utter such an impertinency. Notwithstanding what we have said, however, we think the work is calculated to be useful to French students, and we must say M. Velpeau is fortunate in having so judicious an editor of his views as M. Jeanselme.

The volume of M. Vidal's Surgery before us is almost entirely occupied with the diseases of the eye. This circumstance, and the respectable manner in which the subject is discussed, together with the appearance of the works of Carron du Villards, Rognetta, and Velpeau, we hail as good indications of a rising interest among the French surgeons for the subject.

The methodical physical examination of the organ affected in any diseases, as far as that can be done, ought always to be a leading point in clinical instruction. No organ of the body, perhaps, offers greater facilities for this, or a greater variety of shades of difference to be noted, than the eye. Exercises in *ophthalmoscopy*, therefore, we hold would form a most valuable introduction to the physical investigation of diseases in general. Inasmuch, as regards the diseases of the eye itself, methodical examination is of the greatest consequence. Hence it is that ophthalmoscopy has, in some works, separate chapters devoted to it. Not long ago, we had occasion to notice an Italian work exclusively devoted to the subject. Attention to ophthalmoscopy is the most striking circumstance to be noticed in the ophthalmic clinics of Germany, and what has contributed so much to the general diffusion of a correct knowledge of the diseases of the eye. "It is of great moment," says Dr. Mackenzie, "to examine the diseased organ carefully and thoroughly from time to time; in some cases daily, or even oftener. Many children lose their sight in the puro-mucous ophthalmiæ, no examination of their eyes ever being made, till the corneæ are destroyed. The oculist never declines the examination of the eyes from any real or fancied difficulty." (p. 358.)

Dr. Andræ gives a short but very sensible chapter on the "Examination of Diseased Eyes." M. Carron du Villards devotes thirty-two pages to "Ophthalmoscopy, or general rules and precautions to be observed in the examination of diseased eyes and their appendages;" and on the whole, the article contains a good and judicious summary of advice. M. Vidal has contented himself with extracting the principal points in M. Carron du Villards' observations. Mr. Morgan, in the work we formerly noticed, gives some useful hints to the young surgeon as to the necessity of handling gently, and with management, an inflamed eye when making the examination of it. "It may appear absurd," says Mr. M. (p. 24), "to suppose that any medical man in his senses would throw a stimulating injection into the eye, as a preparatory step to separating the lids, and obtaining in that way a view of the inflamed globe (in order to a diagnosis). Yet many are producing now and then the very same effect as that which would result from such a proceeding by

different means. This effect is occasioned by the manner in which many a novice is in the habit of opening an inflamed eye. I speak of what I am not unfrequently witnessing in my practice; and as I know how few of you are acquainted with the proper mode of examining an inflamed eye, I shall take this opportunity of giving you a few directions on the subject." Mr. M. then proceeds to describe and illustrate by diagrams the right way and wrong way of exploring eyes, and concludes with the following just remark. "You may perhaps think that I have laid great stress upon a comparatively trifling subject; but experience will prove to you that minor points in your surgical practice are of more importance than you may now suppose." (p. 26.)

The eye in fact should be first examined without touching it. The eyelids may be then separated with the precautions only to be learned by experience and good example. A point often very necessary to ascertain, is the degree of firmness of the eyeball. This is of course done by touching and pressing with the finger or thumb, (*palpation ou toucher oculaire* of the French works before us.)

The catoptrical method of investigating the state of the crystalline body, as to its transparency or opacity, when there exist any doubts after the usual mode of examination, finds a place in all the treatises before us except that of Dr. Andrée, the first part of which, containing the chapter on the examination of diseased eyes, was published before the observations, which first fixed the attention of surgeons on it, were given to the world.

The catoptrical method has been applied by Dr. Mackenzie to the investigation of the seat of the opaque appearance in glaucoma. We extracted from the Medical Gazette, at the time they were first announced, the results of his observations, which are now recorded in the new edition of his work before us. We think one point has been overlooked, and that is an image reflected from the bottom of the eye. In the healthy state it is scarcely seen, but in the eye, in which the pigment is deficient, it is well marked, and is, we believe, the cause of the peculiar appearance of opacity at the bottom of the eye in glaucoma. It is not a defined image, but being seen through the lens, and not being at the distance behind it corresponding to its focal power, it looks like an incomplete focus. Being the reflection from a concave surface, it moves in the opposite direction to the light. In fungous tumours at the bottom of the eye in the commencement, the reflection differs only in colour and brilliancy from what is seen in glaucoma; but as the tumour advances forward, the reflected image is thrown forward in a corresponding degree, and hence the appearance is as if the whole interior of the eye were illuminated. We think that in glaucoma the state of the lens only modifies the colour of the reflection from the bottom of the eye; and we do not believe, as Dr. Mackenzie now supposes, that the appearance of opacity at the bottom of the eye, peculiar to glaucoma, is a lenticular image at all.

Professor Chelius thinks that the whitish yellow point at the bottom of the eye in glaucoma, and when the black pigment is deficient, is the entrance of the optic nerve; but he does not reflect that if it were so, the bright point ought always to be distinctly seen, as the entrance of the optic nerve is not covered by pigment. The whitish yellow point we consider, as has been said above, a reflection from the bottom of the eye, and the reason it is almost always seen at the inner and lower side of the middle

of the bottom of the eye—the region of the entrance of the optic nerve—is that in examining an eye the light is always allowed to fall from above and from the temporal side, consequently, the image being formed by reflection from a concave surface, is on the side opposite to the light. If this explanation of ours be correct, the account given by Professor Chelius is a curious illustration how an erroneous opinion may be apparently well supported by indisputable facts.

M. Carron du Villards remarks, (vol. ii., p. 542,) in speaking of gonorrhœal ophthalmia, “The inoculated disease almost always affects but one eye, and I have observed that in left-handed individuals it was the left eye which was effected, and *vice versa*.”

Dr. Mackenzie gives a section on Artificial Ophthalmiæ, which illustrates all the importance of an accurate ophthalmoscopy.

“When a suspicion arises that a number of soldiers together are simulating puro-mucous ophthalmia, or endeavouring to produce serious injury of their eyes by the use of irritants, the suspicion will of course be increased, if the disease is almost exclusively confined to the privates or non-commissioned officers of a regiment, without affecting the commissioned officers or the women and children; also by the circumstance of the inflammation being very frequently confined to one eye, and that almost always the right.” (*Mackenzie*, p. 522.)

After discussing ophthalmoscopy for real diseases, M. Carron du Villards adds: “But medical jurists, and especially those attached to recruiting parties, are called upon to examine diseases which are often simulated. These are principally myopia, amaurosis, opacities of the cornea, chronic ophthalmia with loss of the cilia.” (Vol. i., p. 219.) At p. 222, the same author tells us that he knows a man, unworthy of the name of a physician, who has made an enormous fortune by producing, artificially, specks of the cornea in young persons liable to be drawn into the military service.

On the subject of erysipelas of the eyelids, Dr. Mackenzie relates, from Dr. Piorry, a case which, with numerous others of a similar character recorded by the same physician, makes it appear that one of the modes, perhaps the most frequent but least suspected mode, in which erysipelas of the face or scalp proves fatal, is the spreading of the inflammation from the eyelids to the cellular tissue of the orbit, and the termination of it in abscess within that cavity. “It sometimes happens,” he adds, “that the cellular membrane of the orbit, although considerably affected, does not suppurate. On the subsiding of the acute symptoms, the eyeball in such cases is found to be deprived of its power of motion, is protruded, or has even become amaurotic from the pressure it has undergone.” (p. 122.)

As local treatment for erysipelatous inflammation of the eyelids, M. Carron du Villards, after mentioning mercurial frictions and the two English methods by fine punctures and by cauterization with the nitrate of silver, says: “Professor Rasori treated erysipelas of the face, and especially of the eyelids, with compresses soaked in a cold concentrated solution of tartar emetic (3j.-oi.) This has always succeeded with me, and is what I employ by preference.” (p. 237.) M. Velpeau has found, in his practice at La Charité, the plan by fine punctures or scarifications

of the skin the most successful in erysipelas of the eyelids. In making the scarifications and in opening abscesses of the eyelids, MM. Velpeau and Carron du Villards recommend great caution, lest the eyeball should be wounded. The latter mentions his having been three times witness of such an accident. One of the cases was in the person of an unfortunate physician of Malesherbes, M. Benod, who had both his eyeballs evacuated in the attempt of an imprudent *confrère* to open erysipelatous abscesses in the lower eyelids. (Vol. i., p. 238.)

Dr. Mackenzie gives a section on Malignant Pustule, as the eyelids are a very frequent seat of it. M. Carron du Villards treats of the disease as it occurs in the eyelids at considerable length, and that from personal observation. In the work of M. Vidal (de Cassis), considerations of high practical importance on the disease in general will be found. Fortunately, malignant pustule is not much known in this country. "I am not acquainted," says Dr. Mackenzie, "with any account of this disease, as observed in Great Britain, unless the cases published under the name of *glanders in the human subject* are to be regarded as instances of malignant pustule, to which it cannot be denied they bear in many respects a striking similarity." (p. 127.) Dr. Andrée, from multiplied experience, believes that, though malignant pustule is most frequently produced by animal contagion, it may sometimes occur without it. (Part second, p. 49.)

The method of destroying small *nævi materni* by vaccination was first described in this country, in 1827, by Mr. Hodgson and Mr. Middlemore, of Birmingham. M. C. du Villards, in the work before us, claims having employed vaccination for the cure of *nævus* in 1822. "In a memoir presented to the Minister of the Interior in 1812, and for which my father was awarded one of the great prizes instituted by Napoleon for the encouragement of vaccination, it was stated that inoculation with the vaccine virus effected the resolution of a great number of indolent glandular and other tumours.....In 1822 I was consulted about an infant six weeks old, which had on the right eyebrow a *nævus* of the size of a lentil. I inserted some of the vaccine virus into this tumour by means of a small grooved needle. The same thing was done on both sides of the tumour. Three pustules soon appeared, and after running through their stages, left the small congenital tumour completely obliterated." (Vol. i., p. 357.)

An operation has been performed by Mr. Hunt, of Manchester, in a case of traumatic ptosis, which consisted in removing a transverse fold of integument from the eyelid, of such an extent and from such a place, that when the edges of the wound became united, the eyelid was attached to that portion of the skin of the eyebrow upon which the occipito-frontalis acts; by which means the action of this muscle was substituted for that of the levator palpebræ lost. It has been suggested that Mr. Hunt's operation might be tried in cases of paralytic ptosis, when no signs of improvement from treatment appear. It is true that in paralytic ptosis the epicranii muscle is active, its power depending on the nervous stimulus of the facial nerve; but it is to be remembered that, besides the levator palpebræ, the other muscles of the eye supplied by the third pair are generally affected; hence, as M. Rognetta very justly remarks (p. 445), such an operation in paralytic ptosis would not only be useless

but even injurious, for the patient would continue to squint and have double vision. However, if there was incurable paralytic ptosis on both sides, the operation might be performed with advantage on one side.

Of all the diseases affecting the eyelids, ectropium is that which has perhaps exercised the operative ingenuity of surgeons most. This is not to be wondered at, considering the various causes giving rise to eversion of the eyelids, and considering the great deformity which this state produces and the injury which always accrues in a greater or less degree to the eyeball. In an article on plastic surgery in a former Number, we had occasion to consider certain very ingenious operations for ectropium. Dr. Mackenzie relates a case, first published some years ago, illustrative of a blepharo-plastic operation which Mr. Wharton Jones has found successful in eversion and shortening of the upper eyelid, from contraction of the skin consequent to burns. The peculiarity of the plan consists in the two following points: 1st. The eyelid is set free by incisions, made in such a way, that, when the eyelid is brought back into its natural position, the gap which is left may be filled by approximating its edges, and thus obtaining immediate union. Unlike the Celsian operation, the narrower the cicatrice the more secure the result. 2d. The flap of skin embraced by the incisions is not separated from the subjacent bone, but advantage being taken of the looseness of the cellular tissue between the skin and the bone, the flap is pressed downwards, and thus the eyelid is set free. This method of Jones is described by Velpeau (pp. 105-13), and Vidal de Cassis (pp. 530-1) in the works before us, as one of the simplest and best of the blepharo-plastic operations. It has been performed by M. A. Berard without success, and by M. Velpeau, at La Charité, successfully in one case, unsuccessfully in another, in which erysipelas came on and marred the result.

Before leaving the subject of ectropium, we would make a remark on the literature of an operation proposed and practised by Professor Jaeger of Vienna, the object of which is to increase the perpendicular length of the eyelid, as well as to reduce its transverse elongation. The operation is mentioned in Juengken's *Manual of the Diseases of the Eye*, and particularly described in an inaugural dissertation by Dreyer, published in Vienna in 1831, under the eye of Professor Jaeger himself.* Mr. Lawrence in his treatise on the *Diseases of the Eye* (p. 350), describes the operation in question from Juengken's *Manual*, and in the next page has a note in regard to the same operation as described by Dreyer, but which he supposes another and a different one of Jaeger's, and which he says he does not understand. Mr. Middlemore, misunderstanding the description of the operation given by Mr. Lawrence from Juengken, remarks in a note to his account of the ordinary Celsian operation (p. 787), "Mr. Lawrence attributes this practice to Jaeger and Juengken, but it was advised, practised, and very circumstantially described a hundred years ago by Platner, as well as the proper bandages and other means required for keeping apart the edges of the wound." But the mistake regarding Jaeger's operation, among certain of our English writers, does not end here.—Mr. Samuel Cooper, in the

* There is a very good account of the operation in the *Medical Gazette*, vol. xvii., p. 721, 1836, by Dr. W. Brown, of Glasgow; and a critique on it by Mr. Wharton Jones, in vol. xviii., p. 224 of the same Journal.

last edition of his Dictionary, describes the operation correctly enough, nevertheless, quotes, in reference to it, the remarks of Mr. Middlemore, made, as we have seen, under a misapprehension of the nature of the operation.

In the ordinary operation for entropium, the fold of skin removed, is parallel to the edge of the eyelid. A mode of operating practised by M. Janson, of Lyons, consists in the excision of a vertical fold of skin extending to near the free edge of the eyelid. "This method, ingenious as it is easy," it is said, "has constantly succeeded in the hands of its author." (Carron du Villards, vol. i., p. 327.) Dzondi followed up the ordinary excision of a horizontal fold by that of a vertical one. In a case "excessivement grave," M. Segon obtained "une guérison complète" by following up the excision of a vertical fold by that of a transverse fold in the whole length of the eyelid.

M. Carron du Villards has performed a modification of Janson's operation in one case with advantage. It consisted in making in the margin of the eyelid, five or six excisions similar to those prescribed by Janson, with the only difference, that they were less deep. By the subsequent cicatrization, an inclination outwards was given to the edge of the eyelid.

Professor Chelius mentions an operation for entropium, by Brach,* which does not, like Crampton's, involve the whole thickness of the eyelid. Though apparently more simple than Crampton's, it will be found to require in the performance of it more delicate manipulation. M. Velpeau confounds Brach's operation with that we have already mentioned, as having been performed by Mr. Hunt for traumatic ptosis. The two operations certainly agree in this, that the bit of skin removed is at a distance from the free edge of the eyelid, but this is done with different views.

Dr. Mackenzie mentions a plan of operating in cases of chronic inversion of the lower eyelid, which Mr. Wharton Jones has performed with perfect success. "Having made an incision through the whole thickness of the lid, perpendicular to its edge, near the outer canthus, he cuts out a piece of the skin, and then fixes the lid in the everted position, as in Sir Philip Crampton's operation." (*Practical Treatise*, p. 215.)

M. Rognetta mentions (p. 445), a case of congenital *mediate* ankyloblepharon. There was a small hole at the external angle, by which the tears escaped.

The lower portion of the lachrymal gland, as it appears to us, has been strangely overlooked by surgeons, because in most books, in that of Chelius before us for instance (p. 10), we find the lachrymal gland spoken of as if it were all contained in the lachrymal fossa, and therefore not liable to be wounded. Dr. Mackenzie, however, refers to the exposed situation of the inferior portion of the lachrymal gland, or glandulæ congregatæ, and of the excretory ducts of the gland. In fact, the outer part of the upper eyelid cannot be deeply wounded without the parts just named being implicated.

M. Velpeau mentions the circumstance of a M. Nelle, who having left the lachrymal gland in the orbit after the extirpation of the eye, was

* This was previously described in *Preuss. Medic. Vereins-Zeitung*, 1837, No. vi. p. 27; and *Zeit. Handbuch der plastischen Chirurgie*, p. 392.

forced six months after to remove it also in consequence of the abundant lachrymation it kept up.

Professor Chelius gives (p. 37) a chapter on obliteration of the excretory ducts of the lachrymal gland. But such a condition of the lachrymal ducts is merely assumed to account for the dry state of the eye. It is not established by any direct unequivocal observation—which it would be next to impossible to make on the living eye, and even in the dead eye, we all know how often persons are unsuccessful in demonstrating the ducts of the lachrymal gland. Moreover, supposing the ducts obliterated, that would not be the sole condition of the disease, for the gland itself would be the part principally at fault. Though the pathology of the lachrymal organs has been very fully and ably investigated, it appears to us, that several obscurities and crudities still hang about the subject, which we can expect to give way only before increased physiological knowledge.

The laying open of the lachrymal sac from within the lower eyelid, proposed by Pouteau, (*Mélanges de Chirurgie*, Lyon, 1760, p. 100,) has lately been recommended as new in this country. A. Petit, Pellier, Leveillé, and Bouchet were the only persons in France who considered the procedure worthy of their attention. It is a method, we think, which should not be adopted. The slight cicatrice which an incision of the skin may leave is not to be weighed with the morbid change of the conjunctiva which is likely to result from the constant contact of the morbid secretions from the lachrymal sac.

M. Vidal de Cassis, in discussing the advantages and disadvantages of the insertion of a tube into the nasal duct, dwells at considerable length (p. 557) upon a question first raised, we believe, by Dr. Mackenzie, viz., “whether the tears actually flow through the metallic canal furnished to them by this contrivance, or descend merely on the outside of the tube, as they do along the surface of a style.” M. Vidal without appearing to be aware of the opinion previously expressed by Dr. Mackenzie, maintains with this practitioner the latter opinion. “The tube,” says Dr. Mackenzie (p. 258,) “probably operates more in dilating the duct than in affording a channel for the tears; and I am disposed to think that a gold style furnished with a round head, of such thickness as to allow it to sit easily in the lachrymal sac, but to prevent it from sinking down the duct, and over which the sac and the skin should be healed, and which should be worn for life, might answer the purpose just as well as a tube, or better.” (*Practical Treatise*, p. 258.)

Though the insertion of the tube is for the most part attended by immediate and very striking relief of all the symptoms, it is not to be forgotten, that it not unfrequently becomes necessary to remove it again ere long, if it has not of itself fallen out.—“In seven years,” says M. Carron du Villard, “I have extracted twenty-five tubes; and I know a great number of persons who have been operated on by others. In one week, three persons presented themselves to Professor Cloquet at the clinic of the “Ecole” to have their tubes taken out.” (Vol. i., p. 449.) In explanation of the great number of cases in which tubes have been inserted into the nasal duct and afterwards requiring to be extracted, which the above remarks would lead us to infer, it is to be remembered how indiscriminately and prodigally the operation was had recourse to some

years ago in France, where it was revived by Dupuytren. M. Carron du Villards, makes the following observations on the practice :

“Led away by the facility and brilliancy of this method, most French surgeons of the day adopted it. Their example was followed by a great number of foreigners. Attracted by the noise of Dupuytren’s wonderful cures, patients flocked to the Hôtel Dieu. Whatever was the nature of the case—whether disease of the lachrymal sac or nasal duct,—the inexorable tube was inserted. From this infatuation there resulted many mistakes, and it was soon found out that the use of the tube was not unattended by inconveniences nor accidents, nor even relapses. It could not be otherwise ; for Dupuytren, after having opened the sac, thrust in the tube without previously making any examination of the state of the nasal duct.” (Vol. i., p. 446.)

Before passing to the consideration of the diseases of the eyeball, we would refer to a curious case of ophthalmoptosis related by Dr. Mackenzie (p. 280), which has much analogy with one mentioned in the Pathology of Verduc, (vol ii., p. 44,) and cited by M. Jeanselme, (p. 496.) We would also refer to a case of ligature of the right common carotid by M. Velpeau for aneurism by anastomosis, occurring in both orbits after a blow on the back of the neck, (p. 486.)

As most of the Diseases of the Eye are either inflammation itself or the effects of it, and, as all our operations on the eye must be regulated by the kind and degree of inflammation we expect to follow, the study of the ophthalmiæ must ever be considered the master-key of the subject. Considering also that there enter into the structure of the eye tissues of all kinds, and knowing that inflammation, simply considered, of a tissue is much the same in whatever part of the body it exists, the study of the ophthalmiæ is well calculated to assist that of inflammation in general. A correct diagnosis of the ophthalmiæ is of paramount importance. It may truly be said, that more eyes are lost in consequence of a wrong diagnosis than from ill-directed treatment when the diagnosis has been correct. The young surgeon ought therefore to embrace every opportunity to examine inflammations of the eye, so as to become familiar with the various forms they put on. It is not the possession of *recipes* for salves and eye-waters that is of much consequence, but it is to be able to distinguish under what circumstances they should be employed. The various applications to the eye which have been recommended, are all very good and useful, but they must be employed with method and discrimination.

What requires to be principally noticed in regard to M. Velpeau is the great *fracas* he makes about his views regarding the inflammations of the eye. He tells us that there are no such things as catarrhal, scrofulous, rheumatic, &c. ophthalmiæ. If we turn to the work of Mackenzie, we shall find that the epithets catarrhal, scrofulous, rheumatic, arthritic, are conventionally employed to designate certain well-marked forms of inflammation of the eye, without its being meant that they are always a manifestation of the general disease, the existence of which they would seem to indicate. We believe that this is pretty well understood, at least in this country : we believe it is also admitted that, when we speak of conjunctivitis, sclerotitis, corneitis, and the like, it is understood that the inflammation is not confined to the particular texture indicated by the name : in short, that the nomenclature of the diseases of the eye—

the dynamic diseases especially—is, as in other departments of nosology, necessarily to some extent conventional, always requiring particular descriptions and definitions. It is, therefore, somewhat remarkable to find M. Velpeau—the whole tenor of whose statements (as contained in the work before us, edited by M. Jeanselme,) indicates an origin from a person who has but just turned his attention to the subject, and to whom consequently everything is *new*, and therefore everything a *discovery*;—it is somewhat remarkable, we say, to find M. Velpeau stepping forward and proclaiming that the current opinions in regard to the inflammatory affections of the eye are all founded in error! And the way M. Velpeau proves this is by giving names of his own to certain well-known forms of inflammation, and then turning round and saying that what surgeons call catarrhal ophthalmia for instance does not exist, or is at the most nothing but the form of inflammation now for the first time correctly described and designated by him! But he does not always do so much. In many instances he separates what is naturally connected, and confounds what is essentially different. As an example of the way M. Velpeau corrects the errors of former authors, we may refer to what he says (p. 31) of granular conjunctiva, which he designates “*blephorite granuleuse*,” and tells us that it has not been described apart by authors. Now it has been described in all sorts of ways—sometimes as the consequence, sometimes as the harbinger of purulent ophthalmia, and moreover been the subject of fierce contention. Again (p. 284) we are told that the therapeutics of iritis is but little advanced! In regard to such statements, we are at a loss to say whether the ignorance or boldness displayed be the more remarkable. M. Velpeau frequently alludes to the works published in this country on the diseases of the eye; but in general only to evince by his misstatements how little familiar he is with them. Thus we do not know where he could have found it stated, as he has it at page 211, that Lawrence and Mackenzie order 15 to 20 and 30 grains of tartar emetic in the twenty-four hours in cases of acute cornetitis, and that they sometimes combine it with opium and sulphur. The use of calomel in iritis is discussed at page 287 under the head of “*Purgatives*.” To conclude this notice of M. Velpeau’s views regarding the ophthalmia, it is most provoking the manner in which he presumes to criticise that of which he has not taken proper pains to inform himself, and all this without having made any useful contribution, so far as we can see. No doubt a person but little familiar with the subject might, on reading M. Velpeau’s lectures, be led to suppose that he is the sole discoverer of many of the remedies most effectual in combating the ophthalmia and of the indications for their employment.

Mr. Morgan, in the work we lately had occasion to notice, goes as far one way as M. Velpeau does the other, when he lays so much stress on the inflammatory diseases of the eye being nothing but catarrh, rheumatism, scrofula, &c.

The inflammations of the conjunctiva, from their frequency and in some cases their extraordinarily destructive nature, demand the surgeon’s most serious consideration. It is in the puro-mucous inflammations of the conjunctiva that local applications of an astringent and a stimulating nature produce their most striking effects; but it is to be remarked that, though the injection of the conjunctiva covering the eyeball be

frequently removed as if by enchantment, it will be found, on examining the state of the palpebral portions of the conjunctiva, that the cure is only half effected. This, however, is a great deal; and it would be well if we could always calculate on doing as much: but, unfortunately, cases occur in which Dupuytren's insufflations of calomel, Guthrie's black ointment, or any other boasted remedy of the kind is of little avail. Nor is general antiphlogistic treatment alone successful. "A treatment," says Mackenzie, "partly antiphlogistic or soothing and partly stimulating, is the most successful in the cure of all the puro-mucous ophthalmie." (p. 371.) In the severer forms of puro-mucous ophthalmia accompanied by chemosis, all the ordinary plans of treatment having been too often found ineffectual in shielding the eye from destruction, M. Sanson has fallen upon the idea that, by extirpating the conjunctiva oculi, he should strike at the root of the evil by removing its seat! To say nothing of the ulterior effects of such an encroachment on the organic constitution of the eye, it is to be remarked that the destruction of the eye in such cases is caused not altogether by the excessive inflammatory action of the conjunctiva, but by the injury accruing to the cornea from the pressure exerted on it by the chemosis: a fact pointed out by Dr. Mackenzie in all the three editions of his work, the first of which bears date 1830; and also dwelt on at considerable length by Mr. Middlemore in his treatise published in 1835, as well as in lectures which appeared in the Medical Gazette in November, 1832, et seq. All that can be effected by surgery, therefore, may be done in a milder and less objectionable manner. Scarification of the conjunctiva, the incisions being made concentric with the cornea or in no particular direction, is what has been ordinarily employed; but Mr. Tyrrell has recently recommended the incisions in the conjunctiva to be made in a direction radiating from the cornea and at the places corresponding to the intervals between the insertion of the recti muscles. We have, in a former Number, adverted to Mr. Tyrrell's paper on the subject: here we would only remark that, without offering the slightest objection to the practice, we cannot agree in the rationale of it. M. Sanson's practice of extirpating the ocular conjunctiva is a complete refutation of it in the gross; and Mr. Wharton Jones's remarks, published some time ago in the Medical Gazette, are a refutation of it in detail. M. Velpeau tells us he has derived great advantage from the direct application of leeches to the ocular conjunctiva in inflammatory chemosis.

M. Carron du Villards and also M. Jeanselme give a chapter on Miasmatic Ophthalmia—"la mitte ou ophthalmie méphitique" of scavengers and nightmen, which used to be common in Paris. Dr. Furnari, who has studied with great care the diseases of the eye among the different professions, has made a great many observations on this subject, and it is to him that both Carron du Villards and Jeanselme owe their information. The ophthalmia in question appears to be of a puro-mucous character.

An opinion, enunciated some years ago by Dr. G. Gregory, that small-pox pustules do not form on the conjunctiva and cornea, and maintained in France by M. Gersent, has been lately well supported and illustrated by Mr. Marson, Surgeon to the Smallpox Hospital. Mr. Morgan, in his zeal to prove the analogy subsisting between the diseases of the eye

and those of other parts of the body, says, in reference to variolous ophthalmia, "No one can doubt for a moment that this is a true pustular disease." (p. 34.) Dr. Gregory and Mr. Marson's observations above alluded to are opposed to Mr. Morgan's assertion, that variolous eruptions may occur either on the conjunctiva of the eyelids only, or they may extend generally over the whole surface of that membrane. In fact, the eye suffers in smallpox from common inflammation merely, though of a very severe form. It is an onyx not a pustule that leads to the destruction of the cornea. The fact of the onyx not appearing till the eruption of the general disease is on the decline proves, according to Dr. Gregory and Mr. Marson, that it is not a primary or essential feature of the disease. We would add that the onyx occurring in the substance of the cornea—a tissue quite different from that of the skin—cannot be considered of the same nature as a pustule of the skin, though it resembles it in appearance. Considering the anatomical circumstances of the conjunctiva, if it be affected in any way at all analogous with the skin in smallpox, the external characters of the eruption, as M. Vidal de Cassis remarks (p. 260), must be very different from those presented by that of the skin.

In his article on phlebitic ophthalmia, Dr. Mackenzie gives a series of cases illustrating its rise from,—1st, Inflammation of a distant vein, produced by a wound, or by tying the vein; 2d, Suppurative inflammation of the uterine branches of the hypogastric veins in puerperal women; 3d, Phlebitis occurring in erysipelas, or diffuse cellular inflammation; 4th, Phlebitis arising in the course of febrile diseases.

In illustration of phlebitic ophthalmia from suppurative inflammation of the hypogastric veins in puerperal women, Dr. Mackenzie quotes a case, observed by Dr. Graves, of Dublin, of "fatal phlegmasia dolens after parturition, in which one of the eyes was affected." This case is also quoted by M. Rognetta, under the head of "*Phlegmasia alba dolens de la conjonctive*." M. R. says, in regard to phlegmasia dolens generally, "It is now agreed that the nature of this malady is purely nervous"! As M. Rognetta concludes his article with the following remark, "The affection being as yet known only by this single case [?] of Professor Graves, I can say no more on the subject," he cannot have confounded the affection of the eye under consideration with the disorganizing inflammation of the eye, which has been observed to take place in consequence of injury or disease of the fifth pair.

The subject of sympathetic action, whether of a healthy or morbid character, is one of very great importance in medicine. In the healthy state the most marked sympathy prevails between the two eyes, as far as regards their visible motions. Nor is it less striking in regard to those actions of which each individual must judge for himself, and that only by results—witness the one visual perception from two dissimilar retinal affections. In many circumstances the two retinæ act but as one. If such close sympathy exist between the eyes in health, it is not surprising that we should in some instances find the one taking on a similar diseased action with the other.

In commencing his account of sympathetic ophthalmia, Dr. Mackenzie observes (p. 523), "The general nature of the sympathetic affection, which I am about to illustrate, is inflammation, not of the iris alone, but

involving the whole of the internal textures of the eyeball, especially the crystalline and vitreous capsules and the retina; coming on generally in five or six weeks after an injury of the opposite eye, and terminating most frequently in atrophy and total amaurosis of the eye secondarily affected. The one also which received the original injury generally ends, or has already ended, in amaurosis and softening of the globe."

Sympathetic ophthalmia has hitherto proved so little amenable to treatment, that the total and timely destruction of the injured eye has been proposed; but such a proceeding, it is obvious, can only be justified by extreme circumstances, and after the case has been subjected to the nicest discrimination. First suggested by Mr. Wardrop, from the knowledge of a similar practice being successful in veterinary surgery, the destruction of the injured eye has been actually adopted, though with a somewhat different view, by Mr. Barton, of Manchester. The principle of the proceeding, as suggested by Mr. Wardrop, we think just; for as the retina of the injured eye is evidently one of the principal parts affected, and as the retinæ are constantly working together, disease of one will be a constant source of irritation to the other.

Dr. Mackenzie gives a chapter on Intermittent Ophthalmia. In the former edition of his work he expressed a doubt as to the existence of any disease of the eye, so regularly periodic in its accession, as to warrant the appellation of intermittent ophthalmia. He, however, now gives a case which he says has induced him to change his opinion. The case was that of a gentleman, aged twenty-four, who had been troubled with scrofulous ophthalmia up to the age of ten. For ten months before he consulted Dr. M., the conjunctivæ had been affected with considerable redness, and this symptom presented exacerbations of a distinctly periodic character. The attacks came to a crisis in about thirty-six hours from their commencement, the redness after this gradually decreasing, till the eyes recovered something like their proper colour, and the whole process occupying generally six or seven days. The last time Dr. M. saw the patient was about four years after the commencement of the complaint, which still continued with little change—all the remedies of the most eminent surgeons and oculists of these countries having proved fruitless.

The following observation of M. Rognetta may or may not have something in common with the above kind of affection: "There are," says he (p. 130), "cases of chronic conjunctivitis very slight in appearance, which are connected with slow affections of the meninges of the brain." He then mentions the case of a girl who was "affected with a *conjunctivite intercurrente* of one eye, simulating the catarrho-scrofulous form. Each return of the injection of the eye was accompanied by a certain unusual irritability, headach, and photophobia, not at all in proportion to the slightness of the ophthalmia." Encephalic symptoms afterwards appeared, and death supervened on the sixth or seventh day.

Here would be the place to introduce the Monography of Dr. Eble; but as this article has already extended to so great a length, and as we have had occasion in a previous Number to notice his views regarding the Egyptian ophthalmia, we forego any particular examination of it. We must, however, give some analysis of Dr. Von Ammon's prize essay on Iritis.

We have already noticed some points in chapter first. Chapter second

is on the nature and treatment of iritis in general. Traumatic iritis is considered in the third chapter. In the fourth the author treats of "iritis serosa," or inflammation of the serous lining of the anterior chamber, of which he describes a rheumatic, a scrofulous, and a mixed-cachectic species. The fifth chapter is entitled, "De Iritide parenchymatosa et de variis ejus formis;" and as forms of parenchymatous iritis we find admitted, "Iritis arthritica," "Iritis syphilitica," "Iritis scrophuloso-psorica," and "Iritis scrophuloso-plicosa." In the sixth chapter the author endeavours to establish the nosology, diagnosis, and treatment of what he calls "*Iridoperiphakitis ! vel uveitis vel iritis serosa posterior vel inflammatio iridis et capsulæ lentis.*"

In the above divisions and subdivisions of iritis, it must be confessed, there is too much wire-drawing and conceit.

In speaking of traumatic iritis of one eye, Dr. Von Ammon alludes to the inflammation which is apt to supervene in the other, and thinks to ward it off by applying leeches, not near the eye, but on the temples or behind the ears, and to the eye itself cloths soaked in cold water containing belladonna in the proportion of one grain of the extract to the ounce.

The author tells us he has had several times an opportunity of anatomically examining the iris after gouty inflammation, and has found its natural texture exchanged for an amorphous condensed cellular mass, in which separate vessels and nerves could no longer be recognized.

Those forms of gouty iritis in which, amidst severe gouty pain in the head, vision is often wholly lost in a single night, and in which there is dilatation of the pupil and a glaucomatous appearance, which he calls opacity of the vitreous body, the author considers rather as secondary, arising from inflammation of the choroid and vitreous body. This is in the main what is now generally held by authors. Thus we find that Dr. Mackenzie, in considering the "changes in the iris and pupil, glaucoma, amaurosis, atrophy of the eye," under the head of "Arthritic Iritis," remarks :

"The form of disease just described, although accounted by Beer one of the varieties of arthritic iritis, evidently involves the other textures of the eye more than the iris. Mr. Lawrence and Dr. Canstatt have therefore objected to Beer's classification of the affection, the former describing it under the name of *arthritic inflammation of the internal tunics*, and the latter under that of *choroideitis*. From the suddenness with which vision is extinguished in the affection, along with the dilatation of the pupil which attends it, it is probable the retina is as much the original seat of the disease as any other texture of the eye, and certainly more so than the iris. Mr. Tyrrell describes the same disease under the name of *retinitis*." (p. 484).

We consider it a *choroido-retinitis*, extending on the one hand to the iris, and on the other leading to changes in the vitreous and crystalline bodies, besides destroying the membrane of the pigment; on the loss of which, as we have already mentioned, the appearance of opacity in the vitreous body depends.

As a specimen of our author's therapeutics we give the following: Of collyria he says, "Collyria in universum, in iritide, plus damni quam commodi ferunt." He recommends the inunction of calomel and opium around the eye, and employs belladonna in bags hung over the eye; for this purpose the powder of the dried herb is mixed with powdered sweet

almonds in the proportion of one drachm of the former to one ounce of the latter.

At the commencement of iritis serosa he employs simply antiphlogistics and cooling laxatives, and has recourse to *specifics* only when the cure does not go on. What he means by specifics are anti-rheumatics in the rheumatic form of iritis serosa, and anti-scrofulous remedies in the scrofulous form. He considers the muriate of baryta with cicuta a powerful anti-scrofulous remedy, and ascribes to it "*miram vim in membranas bulbi serosas;*" and remarks, that though it does not cure quickly it cures safely. In the rheumatic form of iritis serosa he praises tartar emetic, which he says acts here as powerfully as in pleuritis.

In syphilitic iritis he advises the corrosive sublimate dissolved in sulphuric ether; but he characterizes syphilitic iritis as "*morbus curatu difficilis.*"

As the treatment of iritis is pretty well understood in this country, we do not think it necessary to make any comment on the above.

The figures, eighteen in number, are coloured representations in large of the iris and pupil simply, not of the entire eye.

We now pass on to the consideration of a few of the more interesting points connected with the organic changes of the eye consequent to the ophthalmiæ. And first a word on *pannus*. This morbid condition of the conjunctival layer of the cornea, in general so rebellious to treatment, Professor Jaeger tells us he has sometimes succeeded in removing, by exciting in the eye a new attack of blenorrheal ophthalmia, by means of inoculation, and then, by well-directed treatment, bringing the inflammation to a favorable termination. This, it is obvious, is a hit or miss proceeding, even if we could always calculate on the cornea becoming clear in the cases, in which we might succeed in saving the eye from total destruction.

Conjunctival xeroma, or xerophthalmia, has of late attracted considerable attention in this country, in Germany, and also in France. It is, says Dr. Mackenzie, "a very peculiar state of the conjunctiva, the result of long-continued and ill-treated inflammation of that membrane. It has been described by Mr. Travers under the name of *cuticular conjunctiva*. He mentions that he had seen cases of this conversion of the conjunctiva into a rugous and opaque skin, go the length of knitting the lids close to the globe, and obliterating the sinus palpebrales." This disease is supposed by some to have for its proximate cause obliteration of the lachrymal ducts. On this point we would refer to what we have already said regarding obliteration of the lachrymal ducts, and remark that, supposing such a condition does exist in xerophthalmia, it ought rather to be looked upon as an effect than as a cause. M. Rognetta thinks it is owing to an affection of the fifth pair, producing a deranged state of the innervation of the part, he, therefore, discusses it under the head of "*Neuroses conjunctivales.*" M. Vidal de Cassis entertains a similar opinion. The view of the matter given by Mackenzie, we believe, is the obvious and rational one, viz., that the disease consists in a change in the structure of the conjunctiva, in consequence of long-continued inflammation, accompanied by a corresponding change in the natural action of the part. Like other changes in the intimate structure of organs, conjunctival xeroma has been found incapable of radical cure.

M. Sanson, either overrating the reproductive powers of the tissues, or supposing that a conjunctiva is not of very essential importance to the eye, has adopted here the practice we have already mentioned, as having been employed by him in purulent ophthalmia, viz., excision of the conjunctiva, the seat of the disease ! but without any good result. "With the intention," says Dr. Andr  , (Part ii., p. 411,) "of producing a sloughing and afterwards an exfoliation of the corneal conjunctiva, I cut away the dry conjunctiva all round the cornea ; but this also was of no service."

Before examining the views regarding the formation of staphyloma, so-called, of the cornea and iris, contained in the works before us, we may notice a singular operation performed by M. Lisfranc, in a case of total staphyloma, but not of large size, in a young man, who was received into the hospital of La Piti  in 1836—the intentional formation, namely, of an anchyloblepharon. "M. Lisfranc, in order to conceal the deformity, and to oppose the farther progress of the disease, united the two eyelids together by suture, after having of course rendered the edges raw ; but there necessarily resulted another disagreeable deformity—the anchyloblepharon. This singular operation, besides leaving the wolf in the sheep-fold," remarks Dr. Rognetta, "and keeping us ignorant of what might afterwards become of the tumour, does away, it is evident, with the immense advantage of applying an artificial eye. Moreover, it is to be asked, is the operation of uniting the edges of the eyelids not more painful and more tedious than excision of the cornea?" (p. 237.)

A peculiar change in the structure of the iris, occurring sometimes as a consequence of chronic, neglected, or ill-treated iritis, has been described by Professor Jaeger, of Vienna, under the name of *staphyloma iridis*, and more recently by Dr. Klemmer, under that of *iridoncus* or *iridoncosis*. Dr. Mackenzie describes it in the first paragraph of his section on Staphyloma, under the title of *staphyloma uve * or *iridoncosis*. Jaeger supposes the change to consist in an attenuated state of the substance of the iris and a protrusion of the uvea through it. Klemmer, on the contrary, contends that it is not a thinning but a thickening of the iris ; not a shining through of the uvea, but a deposition of coagulable lymph in the parenchyma of the iris. Klemmer relates only one dissection, and that not of the human eye, but of the ox.

In regard to the formation of staphyloma of the cornea and iris, Dr. Mackenzie, adopting the views of Mr. Wharton Jones, says that it is not owing to adhesion of the iris to the cornea, as generally taught, and as we find laid down in all the other works before us ; but the cornea having been first more or less destroyed, it is a covering up of the exposed iris by a new substance altogether, which lays the foundation for staphyloma, and constitutes an essential character of the disease. (p. 569.) We believe that adhesion between the iris and cornea, independent of previous penetrating ulceration, does not take place.

Of course, when an inflammation of the eye has run so disastrous a course as that the conditions for the formation of a staphyloma are laid, any prophylactic treatment which may be adopted can have for its object, not to save the eye as an organ of vision, but to prevent it from becoming a tumour, which not only causes great deformity, but is a source of considerable irritation to the opposite eye as well as in itself—so much so,

that the patient seeks for its removal by operation sooner or later. Led by the view he takes of the mode of origin of staphyloma, Mr. Wharton Jones has adopted a peculiar preventive treatment, for a full explanation of which we must refer to Dr. Mackenzie's work. (p. 573.) Mr. Wharton Jones, in the paper in the Medical Gazette, in which he fully enunciated his views regarding the mode of origin of staphyloma, shows that this at first differs only in degree from prolapsus iridis, therefore, when Chelius speaks, at p. 174, of an old prolapsus iridis never presenting a prominence, he gives a very imperfect and one-sided view of the subject. The fact is, if the prolapsus iridis be within certain limits of size, it gradually contracts and flattens as the inflammation abates and the ulcer closes; but if beyond these limits it never collapses, but becomes covered over with a pseudo-cornea, and a partial staphyloma is the result.

It would be an acquisition of great importance to be able to distinguish non-malignant from malignant tumours in the eye at an early stage. "It may now be regarded," says Dr. Mackenzie, "as a generally received opinion, that frequent instances occur of changes of structure deep in the eyeball, producing all the visible appearances of fungus hæmatodes of the eye, but which do not turn out to be malignant. Such cases are not uncommon after injuries. They constitute a diseased state of the eye, which Beer included along with some other conditions of the deep-seated parts of that organ, under the name of *amaurotic cat's eye*."

"If we extirpate such eyes under the notion that they are affected with fungus hæmatodes, the patient will continue well, and we shall fall into the error of supposing that our operation has been an exception to the general failure which attends the removal of the eye in that disease. This error has probably been committed by Mr. Wishart and by Mr. Porter, in two cases which have been given to the public. . . . In some of the cases in question, I have observed that the ciliary edge of the iris appears wrinkled, the larger circle is drawn somewhat backwards, while the smaller circle projects forwards, and is broader than usual; the pupil is in a middle state of dilatation, and its edge is fringed with uvea; the surface of the deposition or tumour at the bottom of the eye is of a pale tint and not so defined as in the malignant cases." (*Mackenzie*, p. 606.)

The above observations, so far as they go, are of so much value that we make no apology for the length of the extract.

In Number X. of this Review, we noticed an article on cataract, by M. Maunoir, in the Memoirs of the Medical Society of Observation of Paris; the object of which was to draw, according to the numerical method, some general deductions, in regard chiefly to the success following the operation for cataract. The data were derived from observations made by M. Maunoir at Professor Roux's clinic. In proportion to the imposing effect which figures give to arguments, so ought to be our jealousy in regard to the correctness of the data on which numerical calculations are founded. If correct, we are furnished with a safe and steady stepping-stone to truth—if incorrect, we are confounded by the sudden yielding which takes place, and get involved in a slough of error. In Dr. Ammon's Monatsschrift for May and June, 1839, we find a letter, dated "Paris, 28th Dec., 1838," written by Dr. Schneider to Dr. Fr. Pauli, of Landau, in which we read, amongst other things in regard to the Medical School of Paris, the following remarks on Roux's operations for cataract: "Cataracts are all extracted, whatever be

their nature—secondary capsular cataracts—such as adhere to the iris, and in which every other part of the eye is as likely to come out as the cataract itself. He tells his colleagues that he finds extraction not more difficult than phlebotomy, and that he performed it the first time as well as he does now. It always succeeds with him. But the word *succeed*, in his view of the matter, means the same thing as to finish. He really performs this operation with remarkable celerity, but I have seen him wound the iris very frequently." (pp. 254-5.) If such be M. Roux's practice, we must reject, as inconclusive, whatever M. Maunoir would have us infer from his figures.

It may here be mentioned, on the subject of cataract, that M. Velpeau gives a very good appreciation of the operations of extraction and depression; but at p. 365, it is very absurdly said, in regard to central cataract, that it had not been before described.

The operation of artificial pupil is more or less ably discussed in all the works before us, with the exception of that of M. Rognetta and M. Vidal. The article on artificial pupil, indeed, is perhaps the most imperfect in M. Rognetta's book.

In M. Carron du Villard's book, we read as follows: "Congenital imperforation of the iris is not frequent: there is, however, a certain number of cases on record, the most remarkable of which was observed by Cheselden, for it was it which suggested to him the idea of opening it artificially, and thus to invent a new operation, which made so much noise in the scientific world." (Vol. ii. p. 195.) This same inaccurate story of Cheselden's cases of artificial pupil is repeated by Velpeau and Vidal. The great misconception here displayed seems to have arisen from confounding the congenital cataract case with the two artificial pupil cases related by Cheselden in the same volume of the *Philosophical Transactions*, viz. vol. xxxv., an. 1728. It is distinctly stated that, in both the cases in which the artificial pupil was made, the closure of the natural aperture had taken place in consequence of the operation of coaching. That it is not foreigners only who have misunderstood Cheselden's sufficiently plain though brief account of his first operations for artificial pupil, will be found pointed out, on referring to a note at p. 372 of Dr. Mackenzie's work. In the life of Cheselden, in the *Penny Cyclopædia*, the same error is committed as that above exposed in Carron du Villards.

We must now bring this article to a close, omitting entirely the subjects of amaurosis and the various states of unnatural and defective vision, as being of too much consequence to be made a tail-piece of. We would remark that, having been compelled to characterize M. Rognetta's article on artificial pupil as the most imperfect in his book, we are happy to say his article on amaurosis is one of the best.

There are still two compositions before us relating to the subject of this article, but which we have not inserted in our list. The one we do not know well how to characterize. It is ostensibly a treatise on the art of preserving the eye in a healthy condition, and of improving the sight; and does contain, in part the second, many good remarks and observations on the subject; but part the first being a sort of romance, we leave it to be handled by the strictly literary reviewers. Speaking as medical reviewers, we should say that Dr. Franz would have been better advised

had he published part the second separately, and that in a less inflated style.

As to the other composition, it is enough to say that the author boasts of a secret remedy he became acquainted with in India, which, "strange to say, instead of being applied to the eye, is dropped into the ear!"

Before closing this article, we think it our duty to advert to the unseemly exhibition of the names of certain medical men daily made in the advertisements of two rival Jew spectacle-venders. Even supposing the spectacles thus lauded as good as any other, is it not unjust on the part of these medical men, to say nothing of the dishonour to the profession, to give the weight of their names to indisputable exaggerations, which tend to deceive the public, and indirectly to prove disadvantageous to those really scientific opticians who conduct their business in a way becoming respectable citizens?

ART. II.

A Treatise on the Causes and Consequences of Habitual Constipation.

By JOHN BURNE, M.D., Fellow of the Royal College of Physicians, Physician to the Westminster Hospital, &c. &c.—London, 1840. 8vo, pp. 257.

WE view with some timidity any work which brings prominently forward the advantages to be derived from the employment of aperient medicines. There is something so apparently simple in the employment of purgatives; the popular fancy has been so educated into a belief of their necessity in almost every case, and the resort to them is so easy a mode of gaining time to deliberate and (in the common opinion) to prepare the way for the action of other medicines, that we have frequently thought that a book might be advantageously written to caution against, with more advantage than to encourage the use of aperients. From infancy to old age, English bowels are subjected to the influence of unnatural stimuli. The habit acquired by the nurses' repeated dose of syrup of rhubarb and magnesia, is strengthened by the doctor's endeavour to purge away measles, scarlatina, and the majority of children's maladies; the bottle of salts and senna shares with the other instruments of discipline in the management of the youth, every headach from fatigue, every pain or ache from whatever cause being attacked by purgation; while at the more enquiring age, the victim having read in a book that purgatives are "good" for such and such complaints, if he possess not the complaint he imagines it, and forthwith endeavours to expel it by the universal medicine. We believe that it would be difficult to overrate the evils which have been produced in this country by aperient medicines. And we are convinced that there are few subjects in practical medicine which more require on the part of the practitioner a cautious and correct judgment, founded upon a safe scientific principle, than the employment of these. On this account and many others which we might mention, we feel that whilst a book such as that of Dr. Burne may be of advantage in many instances, it cannot be safely read or made the groundwork of principles of practice without the

exercise of great caution and judgment. It will be our endeavour, whilst presenting to our readers an abstract of its most valuable contents, to inculcate this caution by occasional observations of our own.

Dr. Burne's plan is, after some remarks upon the physiology of the large intestines, to consider the various consequences of habitual constipation on the general system and on particular parts of it, to discuss its causes and treatment. The last chapter in the volume is devoted to the connexion between constipation and the more prevalent diseases of India.

Imbued with the doctrines of Mr. Abernethy, Dr. Burne commenced his own career of observation of the numerous derangements of the digestive organs.

"I had pursued this enquiry but a short time, when I was struck with the frequency of one particular cause, which could be traced as the only one in operation, from the period of health to the establishment of the disorders the subject of investigation. I found, moreover, that these disorders ceased on the removal of this the presumptive cause, and thence concluded that they stood in the relation of effect to such cause. Next I discovered that this same cause had existed through a long period in diseases apparently only remotely connected with it; and then proceeded to ascertain its relation to these diseases, by tracing back, step by step, the manner of their formation; and the evidence which has resulted authorizes me to attribute the origin and establishment of these diseases to the continued operation of the cause in question; namely, *habitual constipation*." (p. 2.)

Dr. Burne's experience has been extensive, and the result of it, in many cases illustrative of the theory which he above lays down, is given by the relation of these cases. We doubt not that to every practitioner have occurred some of the examples related by Dr. Burne, whose chief merit consists in the care with which he has recorded a great number of facts, capable, with the exercise of due discretion, of being turned to a valuable practical account.

Dr. Burne speaks of a copious discharge of limpid urine as being frequently diagnostic of a loaded state of the colon. We cannot but consider some cases of melancholy, related by the author as the effect of habitual constipation, as quite destitute of anything like proof of this alleged fact. A great fault of many of the medical writers of this age is the readiness with which small facts are gathered together and fitted, whether right or wrong, to some favorite theory. This is a practice of which we cannot hold our author quite blameless, and against which we must on all occasions strongly protest. There cannot be any possible permanency in theories so constructed, nor any other than an occasional and chance benefit arising from practice founded upon them. It seems to be here forgotten that habitual constipation is abundantly frequent without any melancholy; and the meager relation of the cases referred to might lead us to believe, did we not know the contrary to be the fact, that the author knew nothing in hereditary disposition, in the state of the mind and the affections, in the physical peculiarities of individuals, or in numerous other causes, to which might be ascribed the attendant melancholy.

From the chapter on the effects of habitual constipation on the general health, we extract the following caution as one well deserving attention:

"The period at which young females begin to experience irregularity of the bowels is about the age of puberty. At first, the inconveniences are not such

as to attract attention. Slight indisposition happens occasionally, and is attributed to any but the just cause, and unfrequent action of the bowels being thought by ladies at this age rather a desirable habit; but should these pages meet the eye of mothers, I beseech them, as they respect their children's health, to give attention to this subject; and I cannot omit in this place to urge upon all those who charge themselves with the education of the female sex, the same attention as a matter of duty, I would say of humanity; for no one thing is so likely to rouse into action, at this age, pulmonary, hepatic, or any other disease to which the individual may happen to be predisposed, as constipation of the bowels." (p. 34.)

Dr. Burne in this chapter has traced the effects of constipation in its earlier and later stage. In much that he has said we cordially agree, though we think that, as in previous instances, he has not always duly discriminated between the *post* and the *propter*. The disease termed "sick headach" is regarded by Dr. Burne as most commonly caused by habitual constipation. His cases are worthy of perusal. This dependence of the headach and the other train of symptoms upon the constipation is regarded as being proved by the fact that recovery of health is in some instances procured "through means adapted only to the regulation of the bowels." But to ourselves, we must repeat it, the proof is still wanting. An attack of "sick headach" appears frequently to be an effort, and generally a successful one, to relieve the system of some noxious matter. If by the administration of purgatives which produce dejections "two or three times every morning," the bowels having been previously constipated, the disease is cured, this does not prove that mere constipation was the cause. We should be quite as much disposed to infer in these cases, that by the "two or three dejections every morning" the system was cleared of noxious matter just as it had previously been relieved of it by the spontaneous actions which so commonly accompany, or form a part of the affection termed "sick headach;" the purgatives being not alone the means of remedying constipation, but of cleansing the fluids of the system generally. And we the more urge our suggestion on this point, because the treatment must vary materially according to one or other view of the case. Dr. Burne's theory would lead him mainly to a reliance on aperient medicines as remedies for constipation; the theory just stated would lead us to recommend such a change in the habits of life, and especially of diet, as would prevent the formation of such matters as require a violent effort of the system for their discharge. We by no means wish to leave out of view the influence of constipation; on the contrary, we believe it to be a frequent remote cause of this affection; but we think that Dr. Burne has given it a preeminence which it does not deserve. The author takes no notice of the powerful influence of mental causes, or causes operating directly on the nervous centres, which we regard as of equal frequency, and as of much greater importance than constipation.

Speaking of *indigestion, gastrodynia, pyrosis, and sub-acute inflammation and organic diseases of the stomach*, Dr. Burne remarks, "I do not advance the opinion that habitual constipation is the exclusive cause of the above affections, but that it is the most frequent; a point I urge the more, that, in the treatment of these affections, remedies may be directed to the relief and removal of the constipation as an essential and chief means of relieving and removing the disorders of the stomach."

There are many instructive cases of the above-mentioned affections related by Dr. Burne, to which, with the same cautions which we have already given, we may refer our younger readers.

"The treatment [of gastrodynia and pyrosis] is conducted on the principle of restoring the natural function of the bowels, of appeasing the irritability of the stomach, of subduing the subacute inflammatory action, and of removing, as far as possible, its consequence on the tissues of the stomach. The means adopted have been *calomel, opium, the local abstraction of blood, counter-irritation, and appropriate aperients*. The calomel has been given in the dose of *half a grain*, and the opium of *a quarter of a grain* twice a day; namely, after breakfast and after dinner. At these periods the opium reconciles the stomach to the presence of food, and the calomel acts gradually as a mercurial. The dose of mercury is small in order that it might not salivate too soon; time being required to remove diseases of long standing. The effect of this combination is most happy; and success attends the treatment of almost every case which admits of recovery. The medicines are persevered in for many weeks unless the gums become affected, when the calomel is omitted, but the opium is continued. Where the patients have not yet suffered much emaciation, the *abstraction of blood* by cupping to a moderate amount, as *four or six ounces*, from the region of the stomach, very much aids the cure; as does also the repeated application of *blisters*. Aperients must be selected according as any occasional peculiarity exists. I prefer *senna* or *magnesia* with the *compound decoction of aloes*, sometimes with the *sulphate of magnesia*, or *rhubarb* with *magnesia* or *sulphate of potass*. Whatever may be the aperient or purgative required, the bowels must be kept open. The diet should consist strictly of food of the plainest description, and known to be of easy digestion. Broths seldom agree so well as solid food. Vegetables should be well done, and if perfectly tender may be eaten in moderation. Everything that is rich should be avoided. Cream, butter, and sugar should be used sparingly. Strong wines and spirits will frequently afford a momentary relief, but they are nevertheless injurious, and should be abstained from altogether. Perry, in the quantity of a wine-glassful twice a day, where the weakness is great, has proved agreeable and beneficial." (pp. 85-7.)

We have given the above treatment with some minuteness, because we think it, as medical treatment, not to be despised; although we think also that mercurialization is recommended somewhat too generally and liberally. We are of opinion, moreover, that a mode of treatment more strictly dietetic will often produce as speedy a cure and generally a more lasting one. We are ourselves in the habit of modifying this regiminal treatment very greatly according to the varying circumstances of the case; but an experienced and ingenious friend of ours adopts the following method in almost every case, and, as he states, with singular and almost uniform success: Let the breakfast, he says, be of stale bread and a rasher of bacon, with well-made cocoa, or milk and water in small quantity; the dinner of one or two tender mutton chops, with stale bread and a little weak brandy and water; let tea be avoided as if it were poison; and for supper allow the patient to take an egg or two softly boiled, with stale bread and some weak brandy and water or a glass of good sherry. Begin, if you please, by clearing out the bowels with a good dose of rhubarb; and if the stools be fetid and of bad colour repeat the dose. Let as much exercise be taken as possible. Enjoin, with early rising, the daily employment of the flesh-brush and sponging of the body with cold water, or brine, or vinegar and water; and offend the stomach by as little physic as possible.

We think that there is much valuable matter in the chapter on "The Consequences of Habitual Constipation on the Sexual Organs in the Female, through the sympathy of contiguity." The diseases referred to this cause are "*hyperæsthesia and hypertrophy of the womb, dysmenorrhœa, menorrhagia, amenorrhœa, leucorrhœa, abortion, miscarriage, supposed pregnancy.*" It is observed "that habitual constipation ought to be recognized as one very frequent, perhaps the most frequent cause of affections of the sexual organs in females; and even where it is not absolutely the cause, that it is always a source of aggravation." The fact of the rectum, when its normal function, as explained by Professor O'Beirne, is interrupted, becoming the receptacle for fecal matter which is retained therein, and which becomes a cause of irritation by contiguous sympathy, is very properly insisted on by Dr. Burne.

"This irritation is propagated to the other viscera of the pelvis, and an abnormal quantity of blood is determined to them also. The effect of this determination or hyperæmia is to heighten the sensibility of parts, and to cause their functions to be performed with sensibility and pain. Hence *hyperæsthesia or tenderness of the womb; hence the sense of heat about the rectum, pudenda, and bladder; hence dysuria and dysmenorrhœa, and, I may add, painful sexual intercourse and difficult parturition.*" (p. 92.)

In most of the instances of *prurigo pudendi muliebris et podicis* which have fallen under Dr. Burne's notice, long-existing habitual constipation has preceded them. *Hypertrophy, menorrhagia, and leucorrhœa* are traced to the same cause, and also the irritable uterus described by Dr. Gooch. In many of these instances, where Dr. Burne thinks that habitual constipation has been the cause of the disease, he does not maintain that attention to the bowels alone is sufficient for their cure, although this must constitute the most important part in the treatment. Ergot of rye he regards as of great use in menorrhagia.

"I have heard persons express doubts of its efficacy; but so many cases under my own care have been benefited or cured by it, that I cannot but regard it as a most valuable addition to the *materia medica*. . . . Cases in which an exhausting draining hemorrhage has persisted for five or six weeks after abortion have yielded at once to the influence of the ergot." (p. 102.)

It is very important that the ergot should not be at all in a state of decay.

Our own experience bears out the author's in the benefit derived from belladonna in dysmenorrhœa.

"In the treatment of painful menstruation I have found the belladonna most valuable. I have usually prescribed it in the dose of a *quarter of a grain of the extract*, made into a small pill, which may be taken twice a day, where patients suffer, but not very severely, for two or three days about the menstrual period. In the more urgent cases I advise it to be repeated in one hour; then again after an interval of two; then of three hours; till two, three, or four doses have been taken, according to circumstances: and I have seldom been disappointed in the result. It may produce giddiness and dimness of sight, but they soon pass away. Its unpleasant effects are less than opium, and its efficacy decided." (p. 103.)

Dr. Burne alludes to the *pain in the left side, about the hypochondrium*, which is an ordinary concomitant of leucorrhœa, on the connexion of which with the female sexual organs, he remarks, "so constant is this association, that when a patient suffers from pain in the left side, about the margin of the false ribs, it is almost certain that she is affected either

with leucorrhœa, or irritable uterus, or prolapsus, or is pregnant." The author distinguishes gonorrhœa from leucorrhœa by the condition of the inguinal glands, for "in gonorrhœa they are almost invariably involved more or less," whereas they have never been observed by Dr. Burne to be affected in leucorrhœa.

The liquor aluminis compositus diluted, as a wash not as an injection, and applied to the pudenda, the labia being separated, "restrains and cures leucorrhœa. The readiness and almost certainty with which leucorrhœa yields to this outward application, has in part led me to infer the source of leucorrhœa to be from the glands of the os externum." We will not stop to enquire how far the fact of the almost certain cure of leucorrhœa by the application of an astringent wash to the os externum supports the theory of the dependence of that disease on habitual constipation—et sic de cæteris.

From the next chapter we shall but select the following case, as food for very serious reflection to a certain class of surgeons who are extremely fond of cases of stricture of the rectum, and of curing them by means of bougies. The case occurred in the practice of Dr. Roots.

"The doctor was called in great haste, one morning, to a gentleman, whom he found in a most alarming state from depression of the vital powers, and indescribable pain in the abdomen. The abdomen was tense and tender, the pulse was scarcely perceptible; the skin was clammy; and the countenance anxious and haggard: all indicating the utmost danger. The surgeon in attendance reported that the symptoms arose from spasm, and informed the doctor that the patient had *two* strictures of the rectum, which, for some time past, he had been treating with the bougie; that one had yielded; that the patient having been out of town returned last evening; and that he, the surgeon, endeavoured, as usual, to pass the bougie, but could not succeed, on account of a spasm of the gut; that he persevered, when suddenly the patient complained of violent pain, and soon afterwards became alarmingly ill; that he had been with him all night, and had administered injections without avail; nothing, except a little blood and mucus having been evacuated. Dr. Roots gave an unequivocal opinion that the symptoms arose from rupture of the bowel, and that a fatal issue was at hand. The gentleman died in the course of the day. The body was examined; and a lacerated perforation of the rectum discovered. Peritonitis had ensued, and castor oil, administered in the enemas, was seen in the cavity of the abdomen. There was no stricture." (p. 150.)

Dr. Burne thinks that erythema nodosum, psoriasis, impetigo, and acne are the cutaneous eruptions more particularly connected with habitual constipation.

Among the "causes of habitual constipation," Dr. Burne mentions especially inattention to the calls of nature, the inconveniences arising from the want of proper water-closets and privies, the interference with the natural bodily necessities by some of the results of what is absurdly called civilization—sedentary habits and literary pursuits. Certain pathological and mechanical causes are likewise alluded to, together with some of a purely mechanical operation. It is well to bear in mind that magnesia, chalk, cubebs, white mustard seed, pills, the sesquioxide of iron, adulterated bread, various concretions, fruit stones, &c. may be the mechanical obstacles to the passage of fæces through the bowels.

We shall terminate our notice of Dr. Burne's work by such extracts from his remarks on the treatment of habitual constipation as may be

useful to our younger readers. The author very properly insists upon the necessity of ascertaining the peculiar disposition of any individual before determining on the propriety of any interference with his bowels. It is known to everybody that cases are occasionally met with where the bowels are only evacuated every second, third, or fourth day, or even much more seldom, the health of these individuals, however, remaining sound; and on the other hand there are abundant instances in which a relaxed state of the alimentary canal appears to be the essential condition of health. We extract the following as a very useful practical caution on the subject of idiosyncrasies in general:

"To these peculiarities, when stated, we are too little disposed to listen; we are apt to regard them as caprices and fancies rather than as true idiosyncrasies, until some untoward circumstances admonish us that they cannot be slighted or disregarded without hazard to the well-being of our patients and to the reputation of ourselves." (p. 195.)

Under the head of *regimen*, as the first circumstance in the management of constipated bowels, early rising is recommended, and with a wise definition of what this means.

"By early rising, I would understand rather the avoiding a second sleep in the morning than the getting up at any specified hour. Early rising must be construed relatively. A person awakes refreshed, light, cheerful; but if, instead of at once getting up, he dozes off to sleep again, he afterwards rises with unwillingness, and finds his head heavy, his spirits dull, and his bowels indisposed to act. Next to early rising and not less important is the habit of frequenting the closet regularly at a certain period of the day, and of strictly obeying the calls of nature." (p. 196.)

The subject of diet is one of great importance in relation to constipation; but Dr. Burne has said nothing at all novel on the subject. The author does not think that attention proportioned to its importance has been given to the subject of aperient medicines in habitual constipation. He well remarks that the proper object is attained "not by purging the bowels, but by securing their full and free action at regular periods by medicines which not only act but which dispose the bowels to act of themselves." This most invaluable rule cannot be too strongly impressed upon the minds of every one who contemplates the employment of aperient medicines of any kind.

"I have generally found it better," he adds, "at the commencement, to administer aperients in sufficient dose every other day, taking the chance of the bowels relieving themselves on the alternate day, until they have been brought into a more tractable state, and the influence of medicines upon the individual ascertained; after which the aperient can be so regulated in dose as to be administered daily with advantage. Perseverance on the part of the patient is absolutely necessary. In proportion as the state of the bowels improves and becomes more tractable, so let the dose of the aperient be diminished, till at length little and eventually none shall be required. I have known persons obliged to commence with an ounce of infusion of senna who have been gradually able to reduce it to a teaspoonful. So with castor oil, dinner pills, and the like." (p. 206.)

Those who suffer from piles are properly recommended so to take aperient medicines as "to have the bowels relieved in the evening, because they soon afterwards go to bed, and their sufferings, which have been aggravated by the action of the bowels, are relieved by the horizontal po-

sition: whereas, if the bowels act in the morning, the irritation arising therefrom is kept up during the day by exercise and the erect position." On this account it is recommended that sulphur, the best aperient in such cases, combined with a little magnesia, should be taken about noon. In the chapter "on the Action and Value of Aperient Medicines, administered singly or in combination," there is not much that is new, although there is that which it is useful frequently to repeat. *Jalap* is an aperient thought well of by Dr. Burne. Combined with rhubarb in the form of pills, or mixed with the confection of senna, he has found it very efficacious.

"As an occasional purgative, where the bowels are foul, as in persons on the eve of having an attack of gout, the following jalap draught, taken fasting in the morning, clears the alimentary canal most beneficially and without distress: R Pulv. Jalapæ, 3ss; Vini Colchici, Tinct. Hyoscyami, Tinct. Lavand. C. singulor. 3ss, Aquæ Distillatæ, 3j." (p. 212.)

Aloes is said to be "very certain in its operation, but objectionable as a general remedy in habitual constipation, because it leaves the bowels disposed to be confined, so that no ground is gained beyond the immediate relief; and because when taken continually it rather loses its effect, and requires the dose to be augmented."

The following form of dinner pill is recommended by Dr. Burne: R Aloes, 3j., Pulv. Rhæi, ʒij., Pulv. Ipecac. gr. v., Mellis, gr. xij., Spirit. Tenuioris, q. s. M. et in pil xx, vel xxx, vel xl. divide, ex quibus unam, duas, vel tres paulo ante prandium quotidie sumat." The compound decoction of aloes is less irritating in its operation than the aloes given in substance. The author is partial to a compound of this medicine with Epsom salts, which he speaks of as one of the most useful in habitual constipation. Assuredly it is one of the most nasty. However, as there is a variety of tastes among mankind, those who are so disposed may try this: "R Magnesie Carbonatis, ʒjss, Magnesie Sulphatis, 3vj., Decocti Aloes, C. ʒij., Aq. Distillatæ, 3vj. M. Cochlearia ij. vel iij. majora semel bisve quotidie."

Calomel is objected to altogether by Dr. Burne as an aperient, in the treatment of habitual constipation; not that he excludes it from use in certain cases of complication with torpid liver, &c.

"Castor oil," he says, "is on the whole one of the most innocuous and certain aperients. . . . It acts quickly, does not produce a subsequent costiveness, and the longer it is given the less the dose required; a great desideratum."

Senna is a purgative approved of by Dr. Burne, especially on account of its repeated doses admitting of diminution without a lessening of its aperient operation.

Dr. Burne thinks that the *bougie* may be had recourse to more frequently than is customary in the treatment of habitual constipation; that as action of the bowels in infants is frequently much promoted by the introduction of a small candle, a piece of soap, &c. the bougie is equally useful to adults. The author objects, and we think with justice, to the employment of clysters as an habitual remedy.

"In the first place they do not continue to relieve the bowels fully and freely for any length of time; in the next place they do not dispose the bowels to resume their natural action, but on the contrary, render them more confined; in the third place they wash off the mucus from the intestine, which is followed by

a degree of irritation and an unpleasant sense of heat, very similar to that which occurs after washing the hands in water simply; in the fourth place the fæces become more scybalous and hard under their use; and lastly, the individual does not feel the comfort or conviction of having had his bowels fully relieved, on which account he is often induced to resort to a second lavement on the same day. Lavements fail in completely obviating or curing habitual constipation." (p. 229.)

As an occasional resource, however, our author does not reject them. He recommends the injection of the blandest fluids, such as *barley-water*, *thin gruel*, *linseed tea*, or *milk and water*, but simply warm water he regards as acting injuriously upon the mucous membrane of the rectum, and he prefers the use of water of a temperature of 60° F.

In the treatment of obstructed bowels from fæces or foreign substances accumulated in the cæcum or colon, he wisely cautions against the too frequent employment of purgatives.

"If the cæcum or colon is the seat of the obstruction, a tumour may generally be distinguished in the right ilio-inguinal region, or in the region of that part of the colon where the obstruction is seated, which is most generally the sigmoid flexure. The general plan of treatment should be to abstract blood, more or less, from a vein, if the symptoms call for it, and also locally; secondly, to give one or two strong doses of purgative medicine, as colocynth and calomel followed by senna and sulphate of soda: but if these fail, they should be discontinued, and the effervescing saline aperients resorted to and persevered in; opium or the salts of morphia being at the same time administered to remove spasm and assuage pain. The first efforts not having been successful, time should be allowed; and fomentation and baths and clysters be employed as far as the patient's strength will admit. Treated on this plan, patients will survive and do well after many days (*ten* I have known) of actual obstruction with vomiting and hiccup: but if violent measures are persisted in, they will too often sink under the treatment rather than the disease." (p. 233.)

When the obstruction is in the sigmoid flexure of the colon, the injection of fluids through a long gum elastic tube, as recommended by O'Beirne, is the most effectual mode of overcoming it. When in the rectum, mechanical means should be employed, and "the sign which in cases of obstruction should excite suspicion that the cause is seated in the rectum and lead to an examination of that gut, is tenesmus." This fact, although familiar to all practitioners of experience, is often overlooked by young practitioners.

In speaking of the sympathies existing between the pelvic viscera, Dr. Burne quotes an observation of Sir Charles Clarke, that "in proportion as the practitioner is engaged in treating the complaints of one or the other of these parts, he will be led to attribute the symptoms to that organ to which his attention has been chiefly directed." With this caution borne in the reader's mind, and leading him to a constant scrutiny of Dr. Burne's cases and opinions, both in forming an opinion of them and in making them the groundwork of any principles of practice, we think that the work, the notice of which we have now concluded, may be read with considerable advantage. To the man of experience and reflection there is not much that is novel in it; the tendency of the mode and character of the medical education of this century having been to excite the same train of thought and lead to the same kind of practice in the majority of instances; still we think the book a very useful one, as a remembrancer to the old and guide to the young practitioner; and we can

conscientiously recommend it to the best attention of our readers. The general practice inculcated in it, when conducted with great care, is undoubtedly most beneficial; it is its tendency chiefly to lead to excess, against which we would warn our readers. Among the guides to the proper employment of aperient medicines, we do not think that Dr. Burne has given sufficient attention to the colour and general character of the discharges. Making all allowance for peculiarities produced by the nature of the ingesta in the excrementitious matter, there are certain variations of the greatest importance in determining on the propriety of continuing the employment of aperient medicines. In children especially are these noticeable; but there are few chronic diseases even of adults, certainly none connected with a disordered state of the alvine excretion, which can be successfully or even safely treated without a careful and systematic inspection of the stools.

ART. III.

Clinique Chirurgicale de l'Hôpital d'Instruction de Strasbourg. Par P. MALLE, Professeur d'Anatomie, &c.—Paris, 1838. 8vo, pp. 756.
Clinical Observations in Surgery made in the Hospital of Instruction at Strasbourg. By P. MALLE, Professor of Anatomy and Physiology, &c.

THE practical works of military surgeons rarely admit of a complete or regular analysis. They usually contain only the records of the cases which were subjects of particular interest to those under whose observation they occurred, and the task of the reviewer is therefore limited to the selection of the “optima ex optimis,” and the consideration of such general modes of practice as are not commonly inculcated. With these views we have examined the work of M. Malle, one of the best of its kind, and in many respects so good as to induce regret that it has not been published in a form that might admit of more minute analysis.

1. The first case of which we shall make an abstract is a remarkable one.

Wound of the Heart. A soldier, æt. thirty-one, was amusing himself with a comrade in firing, when suddenly his friend's gun burst, and wounded him. He fell instantly in syncope, but soon regained his senses and complained of a severe pain behind the sternum. He was carried to the hospital, where he presented the following symptoms: About two inches on the inner side of the left nipple, between the sixth and seventh ribs, there was a small wound, which gave passage neither to blood nor to air. The chest was normally resonant beneath it; the patient had some bloody expectoration; the heart's motions were obscure and the pulse feeble; there was dyspnœa; the skin was cold, the face pale, and the patient felt as if he should faint. The surgeon in attendance regarding the greater part of these symptoms as the effect of the fright, ordered some simple means. Four hours after reaction took place, and the patient was bled to ten ounces, after which the expectoration of blood completely ceased. The pulsations of the heart, however, remained obscure, the pulse was small, and the sternal pain continued; but the face had regained its colour, the heat of the surface had returned, and the threatenings of fainting had passed away; he was bled again in the evening.

Next day, the patient had passed a tranquil night; the pulse was fuller and regular, at 100; the face flushed but expressive of suffering; the pain behind the sternum continued; the ear distinguished at the part a kind of undulatory crepitation, something like that heard in a varicose aneurism; and there was a little crepitation in the left lung near the heart. Everywhere else the natural respiratory murmur was heard, though the dyspnoea continued; the horizontal position was irksome. The patient was again bled to ten ounces, and cupped over the heart. On each of the two following days the condition of the patient remained unaltered, and the same depletory means were repeated.

On the fourth day after the accident he was better; he had slept four hours and had lost his faintness. He had less pain, there was no longer any râle, the pulse was less frequent and regular. The improvement continued during the succeeding days; the patient had some appetite and took some light food. The pain behind the sternum was almost gone; but there was still dulness in the precordial region: the pulse remained feeble, and he did not evidently gain strength. His apparent convalescence, though it advanced slowly, would probably have been more marked had it not been twice or three times interrupted by the patient's heat of temper and refusal of being restrained to perfect quietude. After each fit of anger his cough became worse, the dulness in the precordial region more extensive, the pain at the sternum more acute, and the pulsations of the heart more obscure; and for every such aggravation of symptoms depletions were required and were generally efficient. He continued thus alternately improving and suffering from a return or aggravation of his first symptoms up to the forty-second day after the accident, when his condition was such as to permit a hope that his recovery would be permanent. At this time, however, he was seized without any evident cause with erysipelas of the left leg, with fever, &c.; his old symptoms returned with irrepressible violence, and he died on the 14th of May, having received the wound on the 28th of March.

On examination, the brain and the abdominal organs were found healthy. In the chest, at the wounded part, there was a cicatrix scarcely firm. The right lung presented on its anterior surface and near the heart a small cicatrix which was also discoverable under the corresponding portion posteriorly, proving that the lung had been perforated. It was also hepatized for about four inches, and united by some slight adhesions to the pleura. The pericardium was larger than usual, and at first appeared distended with liquid. It contained about five ounces of reddish sanies, and some fibrinous clots, two of which adhered to the heart. A foreign body was fixed in the left ventricle. On closer examination this was found to be a portion of the stock of the gun that had burst; it was situated at the front and about the middle third of the ventricle; its free extremity, which was about as large as a full-sized writing quill, projecting about ten lines; the cavity of the ventricle contained a very firm coagulum extending into the aorta. The piece of wood had traversed the left ventricle and the septum, and projected into the cavity of the right ventricle. Its direction was obliquely from without inwards and from below upwards; its form was somewhat triangular, tapering irregularly from the part that projected in front to that which traversed the septum. The internal surface of the heart was red, and in parts a little softened, especially

near the apex; near the valves, on the contrary, the membrane appeared slightly hypertrophied. (p. 274.)

Although instances of recovery from slight wounds of the heart are now far from rare in the records of surgery, yet we believe this is the most severe injury of that organ which has not proved fatal in a few days or hours. In the case by Mr. Davis in the "Trans. of the Prov. Med. and Surg. Association," vol. ii., which in the mode of its production was nearly similar to this, the patient lived only five weeks, and in that case the right ventricle alone was injured. In all the other cases of severe injury death ensued at much earlier periods. The character of the injury in this instance confirms the opinion generally received that the rapidity of death is directly proportioned to the quantity of blood effused, but particularly to the quantity which is retained in the pericardium and presses upon the heart; so that when, as in this case, the aperture is blocked up, either by the foreign body or by a coagulum, life may be considerably prolonged. In its symptoms, also, this example confirms the result of former experience that there are no important injuries less clearly indicated by their immediate effects, or of which all the signs are more inconstant than wounds of the heart. We observe, in a late number of the *Archives Générales de Médecine*, that M. Jobert believes, from some cases that have occurred to him, that the only symptoms of penetrating wounds of the heart that can be depended upon are a sound similar to that heard in a varicose aneurism, which continues till the wound is plugged up by a coagulum, and a constant convulsive commotion of the heart's fibres, which continues even after the formation of the coagulum. In the present case, the first and the clearest of these symptoms was observed, although the wound was nearly closed.

2. M. Malle's next most important case is a *Dislocation of the Carpus forwards*.

A soldier, while tipsy, threw himself from a second floor into the street. He fell, to all appearance, partly on the palm of his right hand, and partly on his head. When carried to the hospital he had all the symptoms of severe concussion. The hand appeared at first sight considerably deformed; it was extended on the forearm, and the carpo-metacarpal region appeared shortened; at the anterior part of the joint there was a remarkable projection, a little convex transversely, and apparently formed by the carpus. The radius and ulna were placed behind; the former preserved its length, and as usual extended beyond the ulna. The fingers were flexed, the tendons of the flexor muscles appearing very tense. With considerable difficulty the dislocation was reduced, but the patient died of the effects of the concussion three days after the fall.

All the parts around the wrist were found engorged and infiltrated with blood. The anterior ligament of the capsule was ruptured; the lower extremity of the radius was unbroken, but the bones of the first row of the carpus were unnaturally moveable upon one another; the ligaments uniting them seemed to have suffered from some violence, but there was no trace of fracture. At the posterior or dorsal part of the wrist there was a similar bloody infiltration of the soft parts, but no injury of the bones. (p. 605.)

The rarity of this accident is proved by Dupuytren and Sir A. Cooper not having met with it. Boyer and Dessault each saw one case of the same kind; and there is an example of it in the museum of St. Bartholomew's Hospital.

3. *Softening of the posterior part of the spinal cord, with loss of motion in the upper extremities, and persistence of their sensibility.* A corporal, æt. twenty-four, came to the hospital in March, 1828, with loss of motion in the upper extremities. He had fallen in his youth from a considerable height on his back, and had felt at that time a severe pain in the dorsal region of the spine. A few days' rest, however, removed this, and he returned to his play. From that time, however, he had felt pains at uncertain intervals in the part which was injured, and their severity was increased by moving the spine; but rest still removed them in a few days. At fifteen the pains were more rare; and up to eighteen he could not remember to have felt them. At that time he addicted himself to excessive masturbation; and he remarked that whenever he emitted semen he felt in the cervico-dorsal region pains like that of a pin scratching the deep parts about there. On giving up this habit, the pains disappeared again; and he soon afterwards was called into the army, where he served actively, and was about to be made sergeant, when, after a severe fatigue, he felt such an acute pain in the usual spot that he was obliged to come to the hospital, where cupping, leeching, and blisters almost completely cured him. A vague pain, however, appearing from time to time, still remained; his health was uncertain, and he could not take exercise without suffering often severely; the motions of his arms were soon found difficult, and the least exertion fatigued him. The malady increasing, he again came to the hospital. His upper extremities were emaciated, and the voluntary movements of them almost entirely destroyed, though he could still contract some of the muscles, as the flexors of the forearm; their sensibility was natural. He had a deep but not very acute pain at the lower cervical and upper dorsal vertebræ. Nothing unusual could be discerned externally; pressure, even when forcible, gave but little pain; all the other functions were healthily executed, and there was no paralysis of any other part than of the upper extremities. Cupping and other means were employed, but the patient grew worse, became more and more emaciated, lost all power of motion in his arms, and died in May.

The brain was healthy. The dura mater of the spinal cord appeared elevated at the part where the pain had been felt; its tissue also seemed externally softer and thicker. The medulla spinalis was altered from the fifth cervical to the third dorsal vertebra inclusively; its substance at this part was so soft, that it was like *bouillie*; this softening was greatest at the first dorsal vertebra; it became less and less as the cord was examined more deeply, and ceased nearly at the centre of the medulla. However, it was by insensible degrees that the organ acquired its normal condition; above and below the passage from the morbid to the healthy state was more sudden. The altered portion of the cord, when attentively examined, showed that there were a great number of blood-vessels in its interior; the softening, in fact, was reddish, and as if the nervous substance had been mixed with a certain quantity of blood.

The other organs were generally healthy; the sixth and seventh left ribs were affected with tuberculous softening near the vertebræ. (p. 741.)

This is another of those exceptionable cases to which rather too much importance has been attached of late. The works of Ollivier and others now leave no doubt that there are cases by which, assuming softening of the spinal cord to be destructive of its powers, the opinions commonly

received of the distinct functions of its columns and even of its being a conductor of the nervous influence from below upwards to the brain, are distinctly contradicted. Thus, in addition to this and similar cases of paralysis of one function with apparent disorganization of the column appropriated to the other, there are recorded examples of paralysis of one or both upper limbs, with a morbid alteration only in the lower portion of the cord; of paralysis of a limb on one side, with organic change of the opposite columns; of paralysis of only one or two limbs, with softening equally affecting the whole cord; of paralysis of distinct parts of the body supplied with nerves from a portion of the cord seemingly healthy, while other parts supplied with nerves coming from a diseased portion exhibited no impairment of power; and so on. All these cases, of which the number now recorded may amount to some thirty or more, may well bear a heavy weight of doubt on the minds of those to whom rarities, though exceptions, are more attractive than common generalities. But, if fairly considered, these cases destroy each other's importance; if there be anything certain in physiology, it is that when a part of the spinal cord is destroyed, the parts of the body supplied with nerves attached to the lower portion lose their sensibility, and can be no longer voluntarily moved; yet cases are recorded where, with excessive softening of a portion of the spinal cord, the parts supplied with nerves from below were not paralyzed. But these cases, even if they were far more common, could not overthrow the well-established general fact; they only prove, if anything, that softened nervous matter may retain its power of conducting impressions to and from the brain; and they may, therefore, be employed as evidence *against* rather than confirmatory of the apparent contradictions implied in other cases of local softening of the cord, without corresponding paralysis of the parts supplied from the altered portion. The fact is, we do not yet know what conditions of nervous matter render it incapable of performing its natural functions, and therefore these confessedly exceptional cases cannot yet be of any weight against opinions founded on direct experiment or more certain observations. It will be only in accordance with what is commonly observed in the progress of science, if those which now appear exceptions should soon become the strongest proofs of the laws against which they are now adduced.

We pass to the consideration of a few of the more novel practical observations that are scattered through the work.

4. M. Malle doubts the correctness of the assertion commonly made, that the aperture at which a gun-shot enters the body is always smaller than that at which it makes its exit. He was led to this doubt by some cases that occurred to M. Begin, and he endeavoured to solve it by experiments similar to those which M. B. had himself once performed at Val-de-Grâce. Several shots were fired at a number of dead bodies, and in every case it was evident that, at whatever part the ball penetrated, the hole at which it entered was larger than that by which it passed out. The latter was only less regular than the former, and its edges were prominent, and thus distinguished from the rounded and depressed contour of the entrance-hole. Some subsequent cases of men shot during life confirmed these facts, and lead the author to believe that all before his time have been mistaken in their observations, (p. 52.)

5. There are some very excellent observations on the influence which fasciæ and other tough tissues have in directing the course of purulent collections, from which the author takes occasion to point out that the conclusion commonly adopted, of a natural tendency in abscesses to approach the surface of the body, is far too general; an opinion in which, for many facts and reasons, we entirely accord with him. Among the cases to which he alludes in illustration of his remarks, are two in which lumbar abscesses opened in the perineum. (p. 107.) In one case, the matter, descending from the first three lumbar vertebræ, had passed through an aperture in the levator ani, after having made its way through the fascia iliaca and the fascia of the pelvis.

6. M. Malle also (p. 305) combats the opinion which is generally received (and more especially by English surgeons), that in wounds of arteries it is always necessary or very advisable to tie the vessel both above and below the wound. He quotes some good facts in favour of his opinion; and against the usually adopted plan urges its frequent difficulty, as in the case where J. Bell was obliged to remove two inches of the fibula to get at the posterior tibial artery, and in that where Deschamps had to make a cut seven inches long through the muscles of the calf to secure the peroneal artery, and was at last obliged to cut the outer edge of the wound, and pass, at haphazard, two ligatures around a mass of tissue above and below the spot from which the blood issued. The cases in which the ligature of the artery at some distance above the wound was successful were a traumatic aneurism of the ulnar artery and another of the carotid. It is evident that no general rule on this subject can be established; the comparative facilities of the two operations, the extent of anastomosis between the wounded and other arteries, the probable size and character of the wound, and a number of other circumstances, varying in each case, must decide the most appropriate mode of proceeding for each.

7. M. Malle gives in this volume a short recapitulation of the principal facts of his work on the diseases of the sympathetic glands, for the study of which a residence at Strasburg is, he tells us, very favorable. (p. 356.) We are surprised, however, at the result to which his experience has led him in their treatment, for he tells us that the enlargements of the glands seldom disappear after they have attained a certain size; all means are ineffectual, and unless they are quickly removed, suppuration takes place, and the disease is indefinitely prolonged. Extirpation is, therefore, the best remedy, and nothing is more simple than its performance. An incision proportioned to the size of the tumour is to be made over its whole length, and the mass is to be enucleated "rather by tearing than by dissection." Such an operation, even without the occasional inconveniences and dangers which M. M. admits, is a most severe as well as simple one, and happily (though enlarged sympathetic glands are common enough) very rarely resorted to or necessary here. We recommend M. Malle, therefore, in return for the many excellent remarks which he offers in this work to the surgeons of this and all other countries, to take from our works some advice on the treatment of this his favorite disease. We think that in these cases his ardent attachment to the Broussaian physiology of disease is not less inimical to his patients than to a judicious and timely use of tonics.

ART. IV.

Traité Philosophique de Médecine Pratique. Par A. N. GENDRIN, D.M., Médecin de l'Hôpital de la Pitié. Tomes I-II.—Paris, 1838-9. 8vo, pp. 703, 694.

A Philosophical Treatise on Practical Medicine. By A. N. GENDRIN, M.D., Physician of La Pitié. Vols. I-II.—Paris, 1838-9.

M. GENDRIN has held a distinguished place among modern pathologists since the publication of his valuable researches into the anatomical history of inflammations. A second great work from his pen, following the former at a distance of thirteen years, and bearing the ambitious title of *A Philosophical Treatise on Practical Medicine*, awakens therefore no common expectation. The qualities that most conduce to the advancement of all inductive science are patience and exactness in the observation of facts, and skill in so arranging and analyzing them as to discover their true relations and import. These qualities, M. Gendrin has shown that he possesses; and he enjoys ample scope for their exercise in the wards of La Pitié. We naturally anticipate, from his maturer labours, the verification or correction of such general principles and precepts as have been previously current,—if not the development of new and still more comprehensive truths.

The first two volumes only of this treatise have yet appeared. Exclusive of a short introduction, they are entirely occupied with the subjects of Hemorrhage and the Diacrisis, or diseases depending on alterations of secretion. As in the introductory chapter, however, the author unfolds the method according to which he proposes to class and investigate all the various forms of disease that fall within his plan, we shall bestow a cursory notice upon this part of the work before we proceed to the important practical topics, to which it is our intention to restrict the present article.

Like most writers who assume a scientific tone, M. Gendrin begins at the beginning, and tries his hand at formal definitions. This is both a proper and a necessary procedure, when we have to do with terms and phrases which might otherwise be obscure, or vague, or liable to different interpretations. But we hold it to be a useless expense of ingenuity when applied to familiar things which all men apprehend and identify alike.

His first paragraph professes to explain what is meant by the state of health. Now this is more easily understood than described—more easily described than defined. We do not think the sentence worth extracting. A part of the difficulty of framing a short formula, which shall express all the conditions implied in that term, and nothing more, arises from the fluctuation which those conditions may undergo without transgressing the limits of sound health. The author truly observes that “the state of health is not an absolute state; it is not the same at every instant of time; it is not identical in all individuals; it is not even incompatible with certain permanent defects in the organs of the body: there are congenital or acquired infirmities, which impede or prevent the action of important organs, but do not destroy the equilibrium of functions by which life is continued, and health maintained.” (p. 1.)

Nor is his definition of disease more instructive or satisfactory. We

do not require or profit by any definition either of health or of disease in the abstract. These terms are each the converse of the other, and alike intractable to scholastic handling. If we could fix in a few words the essential idea of a state of health, it would be enough afterwards to say that disease consists in any deviation from that state. But our conception of disease is perplexed rather than helped, when we are told that "a malady is the union of unwonted phenomena occurring simultaneously or in succession, and in a certain relation to each other, which phenomena are developed in consequence of an alteration in the physiological condition of organs." (p. 3.)

The following remark which precedes this definition, but has a close relation to its subject, is pregnant with profound meaning; and, although the truth which it contains is usually learned at last by those who see much of disease and who reflect on what they see—we fear its full import is too often unperceived by the student, and neglected by the careless and the routine practitioner: "Diseases derive their *origin* from the direct action of injurious causes; but their *subsequent* course, phenomena, and results are determined by those vital laws which regulate also the healthy functions of the whole system." (p. 2.)

M. Gendrin makes Bichat's division of the functions into those of organic life and those of animal life, subservient to his classification of diseases. The general comparison which he draws between the forms of disease that pertain respectively to these two primary divisions of the functions, is diluted by so many words, and so much repetition, as to tire without satisfying the attention. Its substance may be compressed into a short compass.

The diseases that belong to organic life bear these peculiar characters: They have a definite seat, and they alter, for a time or permanently, the structure of the parts they occupy. The functions of relation suffer in these disorders in a secondary manner only, and in consequence of injury done to the organs that are their instruments. *Maladies* of this class may cause death by disturbing or preventing the vital functions, through changes thus wrought in their principal organs. In the investigation of these *maladies*, the physician is not restricted to those symptoms which the patient himself happens to be conscious of, or to exhibit externally, but he explores by his own senses the physical condition of the organs upon the continued functions of which depends the continuance of life.

The diseases that belong to animal life, on the other hand, are not necessarily connected with change of structure; and do not, primarily, modify the function of nutrition. They present alterations in the functions of the nervous and muscular systems alone. When they prove mortal, they are so indirectly, by destroying the relations of the individual to those objects which are indispensable to his existence, or by exhausting the vital organs through the continuance of morbid action. It is seldom that, in studying this class of disorders, the physician can gather information from a physical examination of the bodily organs. He is under the necessity of forming his judgment according to the symptoms declared to him by the patient, and the aberrations of function that manifest themselves to his observation.

If all the acts of organic and animal life were reciprocally independent of each other, the division of the functions which they accomplish in the

animal economy would be easy and exact. But these acts have organs in common, and a mutual reaction. The parts that minister to the functions of animal life are built up and sustained by the functions of organic life. Nevertheless, an important and a well-marked distinction may be observed between most of the numerous maladies that occur without compromising, primitively, the functions of relation and the maladies, also many in number, that implicate these latter functions only.

M. Gendrin separates, then, all the diseases of which he proposes to treat into two great divisions. The first of these divisions includes the maladies that consist in alteration of the functions of organic life. The second comprehends the maladies that consist essentially in alteration of the functions of the life of relation. These two grand divisions comprise together nine classes of maladies, formed according to the nature of the morbid states, as estimated by their constant phenomena; whether these phenomena reveal themselves to clinical observation, or are discovered by a skilful examination of the bodily organs and of the results of functional actions during life and after death.

"CLASS I. HEMORRHAGES. The diseases of this class are placed in the first rank, inasmuch as they consist in alterations in the organs and functions which are concerned in the circulation of the blood, which conduce therefore the most directly to the maintenance of life, and which are the first among all the organs and all the functions in living beings of all kinds. Hemorrhages are also disorders, the phenomena of which are the most easily apprehended, and deviate the least from the conditions of health. It is besides important to consider them in the outset, for these diseases are in themselves causes, symptoms, constitutive phenomena, epiphenomena, and even modes of termination and of treatment of several other diseases.

"CLASS II. ALTERATIONS OF SECRETION, OR DIACRISES. These diseases are morbid actions of greater complexity than hemorrhages: they are often also causes, essential or accidental symptoms, epiphenomena, and modes of termination and of treatment of many other diseases. Less simple than the hemorrhages in their constituent conditions, they nevertheless resemble them in being dependent on the functions of the circulating system, which conveys to the secreting organs the elements of the elaboration performed by them; but they possess this condition in particular, that they are the direct result of a morbid change in the process of elaboration itself.

"CLASS III. PHLEGMASIÆ. These maladies, by reason of the greater number of their elements, are less simple than those of the preceding classes. They have this in common with them, that they are always connected with modifications of the circulation, differing in intensity only from those that constitute the hemorrhages and the diacrisis. Often they are the cause or the effect either of hemorrhages or of diacrisis: frequently also they are modified during their course by some one of those forms of disease supervening spontaneously or purposely produced.

"CLASS IV. FEVERS OR PYREXIÆ. This class comprehends diseases characterized by disturbance of the functions of the circulating system, and frequently of the nervous system; to which are added lesions belonging to the three preceding classes, with this peculiarity, that these lesions, and the functional derangements of the circulating and nervous systems occur together or in succession according to an order for which we do not perceive in themselves a sufficient reason.

"CLASS V. MODIFICATIONS IN THE NUTRITION OF ORGANS, OR ANOMALOTROPHIES. This class comprises all the diseases in which organs or parts of organs are so modified in respect to their nutrition as to approximate in their

structure to the texture of other parts—or as to assume an unusual bulk—or as to diminish in bulk and to lose the natural consistence of their tissues—or as to lose their relations of contiguity or of continuity with other parts. These affections are often consecutive to many of the diseases of the preceding classes; they are also themselves the cause, more or less immediate, of many of those diseases—with which they are frequently thus complicated.

“CLASS VI. HETEROSARCOSSES, OR THE FORMATIONS OF ACCIDENTAL TISSUES. The production, in the midst of our organs, of accidental tissues, which are nourished, increase, and are destroyed in a manner altogether specific, forms the character of these diseases. Most commonly they are independent in their production upon any antecedent malady belonging to the classes already described: but very frequently, by the mere circumstance of their development, they occasion certain of those maladies, which influence in their turn the progress of the primitive disease.

“CLASS VII. CACHEXIÆ. The seat of these maladies is in all the organs, for they effect, primitively, the general organs common to all the tissues. Their symptoms sometimes are expressive of languor and general atony in the action of all the organs, marked especially by loss of colour, diminished consistence, dryness and diminution of heat in all parts of the body. Sometimes they only bespeak a perversion of the general function of nutrition, giving rise to similar lesions in many organs that differ essentially in structure and vitality. The cachexiæ may produce, as symptoms, the greater part of the diseases of the preceding classes; and these diseases are often in their turn the main causes of cachexia.

“CLASS VIII. NEUROSES. These diseases consist in idiopathic modifications of the functions of the whole nervous system—or of parts of that system—considered as the agent of sensation, volition, and nervous excitement or innervation. The form and the importance of these maladies vary according to the functions that are deranged, and according to the extent and nature of those functional derangements. The character proper to these maladies, as well as to those of the succeeding class, is the impossibility of penetrating beyond the functional lesion, so as to refer it to a change in the texture of organs.

“CLASS IX. VESANIÆ. These constitute the last class of diseases—and consist essentially in alterations of the intellectual functions, independent on any discoverable idiopathic lesion of the brain or its appendages.

“The first seven of these classes belong to the first division of diseases, which embraces lesions of the functions, the actions, or the organs of the life of nutrition. The second division includes the eighth and ninth classes.

“There are some maladies which it is impossible to bring strictly within either the one or the other of these divisions. It does not, however, appear necessary to frame an intermediate division for the reception of these mixed diseases. They are all neuroses, and exhibit, in combination with phenomena belonging to derangements in the functions of organic life, marks of a still greater disturbance in the functions of animal life. There is a practical utility in uniting them with the other neuroses—inasmuch as they present similar therapeutic indications, and require similar methods and means of treatment.” (pp. 17, et seq.)

We pass no judgment, at present, upon the foregoing system of classification. The great difficulty will occur in parcelling out the multiform disorders of the human frame into species, and in assigning to each species its due place in its proper class. What degree of skill M. Gendrin may bring to an attempt in which all nosologists that have gone before him have been foiled will appear as his work proceeds. We scarcely venture to hope, however, that he will be much more fortunate in this respect than Cullen, who closes his elaborate endeavour to form a complete methodical arrangement of diseases, with a “*Catalogus mor-*

borum a nobis omissorum, quos omississe fortassis non oportebat." The science of medicine has made a vast stride in advance since his day; but there are yet many parts of it too obscure and unsettled to admit of a perfect and systematic classification.

M. Gendrin divides the First Part of his work, comprehending his First Class of Diseases, HEMORRHAGES, into four books. The following are the subjects treated under each:—

BOOK I. Of Hemorrhages in general.

BOOK II. Of Hemorrhages which take place from exhalant surfaces, or through the channels of secretion.

A. *Hemorrhages of mucous membranes.*

1. Epistaxis.
2. Hemoptysis or bronchial hemorrhage.
3. Gastro-hemorrhage.
4. Entero-hemorrhage.
5. Hematuria.
6. Uretro-hemorrhage.

B. *Cutaneous Hemorrhages.*

1. Hematidrosis, or bloody sweat.

C. *Hemorrhages of serous membranes.*

BOOK III. Hemorrhages into the substance of Tissues, or Interstitial Hemorrhages.

1. Hemorrhoids.
2. Apoplexy, or hemorrhage within the skull or vertebral canal.
3. Pneumo-hemorrhage.

BOOK IV. Morbid modifications of natural or functional hemorrhage.

1. Menstruation.
2. Dysmenorrhœa.
3. Metro-hemorrhage.
4. Utero-placental hemorrhage.

On the present occasion, it is our purpose to confine our attention to the subjects treated of in the first and last books; reserving for another opportunity the notice of the other diseases included in this most important class of maladies.

1. OF HEMORRHAGE IN GENERAL. The escape of the blood from the vessels that contain and carry it, whereby it is poured out of the system or deposited in the cavities of the body or in the interstices of its tissues, has been taken by most writers on the subject as the single essential circumstance in that morbid state which is designated by the name of hemorrhage. Certain phenomena have indeed been noted as frequently preceding the extravasation of blood, and certain other phenomena as frequently following it. M. Gendrin assuredly takes the true and philosophic view of the matter, when he includes, as parts of the entire malady, those unnatural conditions of the system which prepare for the extravasation, those which accompany it, those which succeed it, and those which repair its effects.

There are four elementary morbid conditions, by the succession or combination of some of which, all hemorrhages are marked—viz. 1, Polyæmia, or a state of general plethora; 2, Hyperæmia, or local congestion of blood; 3, Extravasation of blood, or hemorrhage strictly

so called; 4, Olygæmia, or, according to the usual but less exact nomenclature, anæmia.

These conditions are familiar to the experienced physician. The author's elaborate description of each contains nothing new or peculiar.

The first two of these are often precursors of the malady; the last is never connected with it but as its consequence.

Hemorrhages are always composed of at least two of these elements—local hyperæmia, and extravasation of blood. Often a third morbid element concurs, namely, general plethora or polyæmia. And the loss of blood may throw the patient into a state of olygæmia. This consecutive morbid state imprints in its turn peculiar characters on the fresh hemorrhage which may take place during its existence, and thus it becomes another element of the malady. It takes the place of the sanguine plethora, with which it is incompatible: and the hemorrhage is still made up of three elements—local congestion, extravasation of blood, and olygæmia. This constitutes what has been called passive hemorrhage; and it is often symptomatic of other morbid conditions.

There is scarcely any part of the body which may not be the seat of hemorrhage; but those organs are most liable to it of which the texture is the most delicate and the least compact, which are provided with the greatest number of red blood-vessels, and of which the vascular network is the least deeply involved in the proper tissue of the organ. Hence hemorrhage from the mucous membranes is the most common of all; and especially from those which possess in the highest degree the anatomical peculiarities just noted. Next to the mucous membranes, in respect of liability to hemorrhage, comes the skin. Seldom does idiopathic hemorrhage proceed from the serous surfaces. It takes place, however, from the follicles or canals that belong to secreting organs; and M. Gendrin inclines to the opinion (which many familiar facts might be adduced to corroborate) that the blood in all these cases escapes through the same channels as give exit to the several secretions. Hemorrhage into the substance of the tissues is also of frequent occurrence; and these tissues are the most obnoxious to this kind of lesion which contain the greatest number of red vessels.

The author is very full—not to say verbose and redundant—upon the *etiology* of hemorrhage. All the influences that produce, or tend to produce, either general plethora or local congestion are obviously to be considered as predisposing causes of hemorrhage. The *ingesta*, the *circumfusa*, the *applicata*, the *acta*, the *excreta*, the *animi pathemata*, form so many heads under which causes of this kind are discussed.

Among the *ingesta*, a full and stimulant diet and the continued use of exciting liquors may justly be reckoned as direct causes of general plethora. That tea or coffee, when taken habitually, have (as the author supposes) any such effect is in our opinion a mere piece of theory which all experience serves rather to confute than to confirm. Neither are we aware of any facts warranting the belief that preparations of iron ever tend to occasion hemorrhage by producing sanguine plethora. It may be admitted that such *ingesta* as exercise a specific stimulating action upon certain organs will be likely to produce congestion of blood in those organs, and therefore a disposition to hemorrhage. But probably there are not many substances which can be proved to possess such a special

power. M. Gendrin mentions emmenagogue drinks and drastic purgatives, as respectively calculated to determine hemorrhage from the uterus and from the rectum.

The *circumfusa* include chiefly certain qualities of the atmosphere. Dry and elevated situations and a continued high temperature, whether natural or artificial, conduce to sanguine plethora, and consequently to hemorrhage. A proclivity to hemorrhage is noticeable among the inhabitants of hot climates: the menstrual flux is more abundant. We can readily appreciate the tendency to hemorrhage produced in certain persons by great and sudden meteorological changes which cause a sensible variation in the weight of the atmosphere and in its electric condition, and which thus exercise an intelligible influence upon the circulation. The author quotes a remarkable illustration of this, recorded by Dr. Mead.

"In the year 1687, Dr. Pitcairn being at a country-seat near Edinburgh, on a fairer day than usual at that season, and the sun looking reddish, was seized at nine in the morning, the very hour of the new moon, with a sudden bleeding at the nose, after an uncommon faintness. And the next day, on his return to town, he found that the barometer was lower at that very hour than either he or his friend Dr. Gregory, who kept the journal of the weather, had ever observed it: and that another friend of his, Mr. Cockburn, Professor of Philosophy, had died suddenly at the same hour by an eruption of blood from the lungs; and also five or six others of his patients were seized with different hemorrhages."

We have long surmised that the occurrence, at certain periods, of apoplexies in such numbers as almost to give an epidemic character to that disease—a fact of which no hospital physician can be ignorant—may often be attributed to the immediate influence of atmospheric changes upon the circulation of individuals disposed to cerebral hemorrhage by previous disease of the blood-vessels. The connexion between ascertainable meteorological phenomena and the prevalence of particular disorders opens a wide and interesting and almost untrodden field of research, to which we earnestly invite attention.

The effect of a very cold atmosphere as a determining cause of hemorrhage is well known; and the common explanation of this is probably the true one, namely, that the cold operates by repelling the blood from the superficial capillaries, and accumulating it in the deeper-seated vessels. It was observed that, in the Russian campaign in 1812, many of the French soldiers were attacked with bleeding from the nose, mouth, and various parts of the body.

The *applicata* consist of mechanical violence, chemical irritants, hot and relaxing applications, such as poultices, compression by means of ligatures or otherwise.

The *acta* include all those movements of the body which imply long-continued or strong effort. These are points which require no particular notice.

Under the head of *excreta* the author remarks that every act of secretion is preceded by hyperæmia of the secerning part; and that when the process is forced into undue activity, blood is apt to make its appearance in lieu of or mixed with the proper product of secretion. Another way in which the excreta may be connected with hemorrhage is when some natural or long-continued discharge of blood, or of materials furnished

by the blood, is suppressed, while the whole mass of blood continues to be replenished as fast as before the drain ceased, and plethora is the necessary consequence.

Moral emotions also—such as alarm, anger, anxiety—have often, however the fact may be accounted for, been succeeded by hemorrhage. After noticing these, M. Gendrin goes on to consider the influence of *sex, age, temperament, and the accomplishment of certain functions*, in the production of hemorrhage.

It is notorious that women are more subject to these disorders than men. This partly resolves itself into their greater liability to hemorrhage *by deviation* resulting from interruption to the periodical escape of the blood or its materials in menstruation. M. Gendrin affirms, however, that, independently of this function, females are more prone to those conditions of local or general plethora which constitute a predisposition to hemorrhage: so that this proclivity is evident not only during the period of life between puberty and the final cessation of the catamenia, but also before and after that period. He believes those authors to have been mistaken who have considered males to be more frequently afflicted, especially in advanced life, to hemorrhoids and hematuria. It would require a large tabular record of facts to determine this question; which, after all, is not of much obvious or practical importance. We question the accuracy of the latter part of the following remark:

“The greater aptitude of hemorrhage manifested by females during almost the whole of their lives, is a predisposing circumstance which renders them also more subject to plethora and hyperæmia. The same aptitude enables them to bear bloodletting better than men, and teaches us the propriety of insisting on that therapeutic measure with less reserve in the disorders of women.” (p. 59.)

With respect to *age*, hemorrhages take place at every period of life; but it has long been matter of observation that they happen more at certain ages than at others, and that they proceed from certain parts of the body more commonly at one time of life than at another. The period of puberty, the epoch at which the growth of the body is just completed, the time at which its maturity may be said to terminate, are the three periods of life when hemorrhage is most common. Again, in newly-born children the digestive organs are most apt to be the seat of hemorrhage; in children and adolescence, the nasal cavities; in adult age the lungs and intestines; in the middle portion of life, the colon and rectum; then the brain; and in old age, the tendency to cerebral hemorrhage is combined with a disposition to the discharge of blood by the urinary organs.

M. Gendrin maintains that it is not exact to say, with preceding authors, that the sanguine *temperament* is the most favorable to hemorrhage, but rather the sanguineo-lymphatic, which is characterized by a considerable development of the organs of circulation, with a certain degree of fulness of person, and of laxity of the cellular tissue and of the integuments. This temperament is more frequently met with in females, and it is always connected with a high degree of nervous susceptibility, which favours the operation of other occasional causes of congestion and hemorrhage.

The *functions*, upon the failure or irregularity of which may depend

the production of hemorrhage, are those of menstruation and parturition; and the manner in which, general plethora or local congestion may become the consequence of a defective or an excessive elimination of blood from the system in connexion with these functions, requires no further exposition.

Sleep, according to M. Gendrin, is an undoubted promoter of hemorrhage. In the majority of cases of hemorrhage, in persons predisposed to that form of disease, the bleeding comes on during sleep. This is a fact of which we were not cognizant. We even presume to question the correctness of the statement.

That the disposition to hemorrhage descends often from parent to child is unquestionable. We conceive that this disposition may be transmitted just as those peculiarities of shape, feature, and complexion are transmitted that constitute family likenesses. The same plan or pattern of conformation, the same qualities of texture and tissue, occurring in the offspring, confer a predisposition to the reproduction in them of the disorders of the parent. But we are not aware of any facts which go to show that the hemorrhagic tendency is hereditary, in that wider and more remarkable sense in which scrofula, gout, or insanity, are truly said to be hereditary,—the proclivity to these complaints descending from father to son, or overleaping a generation and reappearing in the grandson, although there may be no discoverable resemblance in the cast of countenance, the colour of the hair, eyes, and skin, or the general configuration of the bodily frame. It is, however, an important fact that a disposition to hemorrhage on the application of slight causes is apt to run in families; and that sometimes it is so strong as to impress a very singular and unfortunate character, constituting what has been called the hemorrhagic diathesis, upon the individuals who derive their origin from a common progenitor.*

In considering the pathological conditions which act as predisposing or occasional causes of hemorrhage, the author again brings forward the subject of plethora; and this habit of repeatedly exhibiting the same thoughts and circumstances under different heads, imparts to some portions of his work a degree of confusion and perplexity which is much to be regretted. His general facts are for the most part well selected, and his inferences from them are usually sound and just, but they are not skilfully or clearly disposed. And as there can be no pretence to novelty in the doctrines we have hitherto been examining, we look upon this loose and diffuse mode of discussing them as a very serious defect, seeing that what is naturally expected from a writer who assumes the office of setting a great subject in order, is, that he should present that subject under its most plain and perspicuous aspect. In perusing the present work, we cannot help feeling that M. Gendrin is occasionally wearisome. Several pages still further onwards we reach a paragraph, of which the subject matter is "*en quoi consiste la plethore.*"

Hemorrhages are among those disorders which generate, the more frequently they happen, a disposition to their own recurrence. When the system has been accustomed to losses of blood, and to the renovation of the lost fluid, it is thereby rendered more than commonly susceptible of

* See a marked instance of this in No. xvii. of this Journal, p. 247.

local or general fulness, and therefore of hemorrhage, which redresses such fulness. Hence we find that artificial bloodletting, frequently repeated, tends to produce plethora and consecutive hemorrhage.

Whatever morbid condition implies great disturbance of the circulation of blood, or a mechanical impediment to its course, will be apt to have hemorrhage as one of its symptoms or accidental effects. And when the blood is poured forth from a ruptured vessel, it becomes a symptom of the accident or malady which led to the rupture.

We pass by the author's observations on the *proximate causes* and the *nature* of hemorrhages, and the chapters devoted to their *diagnosis* and *prognosis*, as containing only the common-places of these topics, involved, as usual, in a superfluity of words; and we come, in the last place, to the *general therapeutics* of hemorrhage.

When hemorrhage is symptomatic of some disease which impedes the free passage of the blood, or effects a breach of its containing vessels, or modifies the quantity of the blood and the contractility and texture of the vessels and tissues, the treatment applicable to the hemorrhage will commonly merge in that which is required by the antecedent disease.

In idiopathic hemorrhage, the first point the physician has to consider is, whether the bleeding should be left to itself, or whether he should attempt to staunch it? The answer to these questions must be collected from an investigation of the component elements of the malady, and of the organs which it affects. The principal morbid element of the disease consists in hyperæmia or plethora, and these conditions often find their cure in the extravasation of the blood, which is harmless and salutary whenever it does not exceed the limits required by the degree of the preceding congestion, and implies no damage to the organs in which it occurs. In such cases, an *expectant* treatment is the only treatment that is rational. This does not mean that no measures whatever are to be taken, but that our endeavours are to be limited to preventing the discharge of blood from becoming excessive or irregular, to warding off all causes that are likely to increase it, to keeping the patient cool and tranquil, and to correcting any obvious disorder in the digestive organs, or in the circulating or nervous systems. To attempt the direct suppression of the bleedings while the plethora that occasioned it remained undressed, would be to incur the hazard of producing some other and less innocent form of hemorrhage.

The expectant treatment becomes unsuitable, and even dangerous, when important organs are implicated or threatened; or when, either from the age of the patient, or from his previous state of health, the mere loss of blood is likely to be injurious. We have then to consider the treatment proper to be employed for removing the state of general plethora. Artificial abstraction of blood, and artificial congestion, are the first among the agents curative of that state.

Bloodletting, which operates by diminishing the quantity of blood in the vessels, and by rendering it less stimulant, because less rich in fibrine and colouring matter, is still to be restrained within certain limits. When carried to excess, or repeated too often, it generates the very condition it is intended to correct. Nor is bloodletting alone sufficient for the object in view. Its influence must be assisted by repose of body and tranquillity of mind, by a temperate and anstimulant diet, and by the less

direct depletion of the blood-vessels effected by remedies that augment the natural secretions.

The author here discovers that groundless horror of purgative medicines which has long formed, and which we believe continues, though in a mitigated degree, still to form, so singular a feature in the French school. Purgatives, he argues, are stimulants; and, in a state of general plethora, we must employ them with much reserve, lest we produce congestion, hemorrhage, inflammation, in the parts on which they act. He prefers, therefore, active diuretics, of which he affirms, 1st, that they are more effectual (a proposition wherein we place no credence); and, 2dly, that they are not attended (why, he neglects to explain,) with similar risks. He specifies two drugs as being eminently serviceable, digitalis and nitre. From one to three grains daily of the former, in substance, prove diuretic, he tells us, in a high degree, and may be administered for a long time together, without diminution of their influence upon the kidneys, and without inconvenience. The action of the nitrate of potash as a diuretic is more speedy, but perhaps less sustained; it must be given to the amount of three or four drachms, or even more, every day, and in that quantity its only unpleasant effect is its disagreeable taste.

The author next takes into consideration the means proper for relieving *local congestion*. Where hyperæmia exists on the exterior of the body, the obvious cure would seem to lie in emptying the gorged vessels of the part, by the direct removal of blood. But, besides the state of general plethora which may be present and constantly renew the local congestion in spite of bleeding, there may be some special cause in operation that keeps the vessels full. We must guard against allowing the mode of taking away blood to encourage and maintain congestion, by the local irritation it produces.

The general rules in respect to treatment may be thus laid down: We must first counteract and annul the condition of general plethora when it exists. This being effected, the local congestion will often subside spontaneously, either at once or by degrees. But when no indication of general plethora is perceptible, and the local hyperæmia persists, we combat the latter. And the question immediately occurs, whether we are to do this by emptying, in as direct a way as we can, the turgid vessels of the affected part, or by means of distant revulsion or derivation.

M. Gendrin replies to this question in substance as follows: If the hyperæmia has lasted for some time, and manifests no disposition to increase, we may as well operate at once upon the seat of the congestion. But here we should avoid, as much as possible, the use of means likely to increase or keep up the congestion. For the same reason we should make the loss of blood considerable. The irritation caused by leeches, or the suction of cupping-glasses, will be apt to sustain the local fulness, unless the quantity of blood removed by them is sufficient to countervail and overbalance that tendency. We have a practical illustration of the propriety of this rule in the effect of a few leeches applied frequently to the groins or vulva, in promoting deficient menstruation, compared with the effect of a large number applied at one time in relieving uterine congestion. If, on the other hand, the hyperæmia appears to be augmenting, or shows a tendency after some diminution to return,

then it will be better to solicit congestion to some other part. When the morbid congestion has resulted from deviation or suppression of some previous local flux, we must endeavour to restore the original discharge, especially if this be more harmless than the consecutive hyperæmia.

The measures employed for the purpose of effecting such a diversion of the congestion are general bleeding, which indirectly withdraws the blood from the suffering organ, and the distant application of what are called rubefaciens, sinapisms, hot water, cupping-glasses. The new hyperæmia caused by the latter expedients takes place at the expense of the morbid hyperæmia, and conduces to its relief. Care must be taken to establish the artificial congestion at a sufficient distance, to renew it frequently, or to maintain it until the morbid congestion has disappeared.

Another mode of accomplishing the same object—traceable to an early period, but seldom used, we apprehend, at present—is that of applying ligatures upon the limbs or compression to certain arteries of the body. Ligatures necessarily impede the return of the venous blood from the extremities towards the heart. They must not be so tight as materially to hinder the course of the blood through the arteries. The blood is thus shut up in the veins and capillary vessels of the limb. Hence the quantity contained in the vessels of the rest of the body is diminished, and feebleness of the circulation with faintness is rapidly induced. By these means the vessels of the diseased part are indirectly emptied; and a similar effect is produced directly by compression of the arteries that supply it with blood. We can seldom avail ourselves in practice of this expedient; yet in some instances, where life is ebbing under rapid hemorrhage, it is both practicable and of the utmost advantage.

When general plethora or local congestion has been effectually remedied, extravasation of blood seldom continues. The cure of most hemorrhages consists in the removal of one or both of these elements of the whole morbid condition. Therapeutic measures are, however, sometimes employed with the view of staunching the flow of blood. They are supposed to have the property of constricting or obstructing the channels of the hemorrhage or of diminishing the activity of the circulation in the diseased organ. So long as there is much topical congestion remaining, such measures are dangerous; for they tend to increase the irritation and other mischievous consequences of the hyperæmia, which a continuance of the hemorrhage would relieve. This hazard belongs especially to mechanical or chemical styptics made use of to restrain external bleeding.

When outward applications of this kind are inappropriate or impossible, internal medicines are given with the same object of arresting the escape of the blood. They are believed to operate through some sympathetic relation between the bleeding part and the alimentary tube, or by effecting some change in the blood itself. M. Gendrin regards this as a mere hypothesis; and affirms that we have no evidence of the efficacy of such medicines, exhibited internally, in restraining hemorrhages. Such scepticism, however, is groundless, and the result of mere inexperience. It is probable that his theoretical persuasion of the inutility of drugs in such cases, or his inability to perceive in what manner they can influence the disposition to hemorrhage, has prevented him from making the requisite trial of those which are most in repute. No English physician can be ignorant of the styptic qualities of the acetate of lead. Its *modus ope-*

randi is more questionable. There are some other forms of medicine which we may reasonably suppose to act by their astringent property upon the capillary vessels or the tissues by which these are surrounded. Of this kind are the numerous vegetable substances that contain gallic acid, which passes undecomposed through the blood, and reappears in the excretions, and especially in the urine. That certain forms of uterine hemorrhage are controllable by the ergot of rye, administered internally, is also beyond dispute.

The author's observations respecting the influence of cold and of the state of syncope in staying hemorrhages, call for no particular comment.

When oligæmia is the consequence of repeated or excessive losses of blood, it becomes in its turn an object of remedial treatment; and M. Gendrin's recommendation of steel and bitter medicines, of moderate exercise in a pure and dry air, and of friction to the surface of the body, is such as all practical men in this country will appreciate and approve. Not so, we think, the *nimia cura* which, over and above these measures, would direct specific remedies against the several symptoms that arise out of the oligæmia—digitalis, for example, to quiet the palpitations that are apt to attend it; alkaline potions for the dyspepsia; diuretics for the œdema of the ankles. These are mere accidents proceeding from the deficiency of red blood, and will disappear when that want is repaired. Indeed, they are more likely, in our judgment, to be aggravated than relieved by the means which our author has proposed.

Upon the whole we confess that the First Book of M. Gendrin's work has somewhat disappointed our expectations. That the doctrines advanced in it are most of them sound, and supported by reason as well as by experience, we willingly admit. And we do not complain of them because they are not new; novelty not being the desideratum in such undertakings, but truth. We are instinctively put upon our guard against a writer whose main boast it is that he has discoveries to announce which had eluded the sagacity of all his duller predecessors. Such vain and dishonest pretenders are not unknown to the medical literature of our neighbours across the channel; but M. Gendrin is of another order. What we most want at present is that the vast mass of facts relating to disease, accumulated through a long series of bygone ages, and prodigiously augmented during the last quarter of a century, should be turned into the propositions and precepts of true science; that the mute language of established phenomena should be rightly interpreted and clearly expressed, and rendered profitable for our daily use. We do not say that M. Gendrin is not qualified to supply this want; but we are bound to declare that in expounding those general views of hemorrhage which have formed the subject of our present criticism, we have found him diffuse even to dullness, and strikingly deficient in that lucid arrangement and gracefulness of style which are requisite, in order to display even solid knowledge to advantage, and without which it is difficult to arrest the attention or command the interest of the majority of readers.

II. OF MENSTRUATION AND ITS DISORDERS; AND OF UTERINE HEMORRHAGE. It is not our intention to notice all the author's opinions on each of the subjects treated of in the Fourth Book of M. Gendrin's work, since in many cases these in no way differ from those received as current in the profession; but we shall confine ourselves to the discussion

of those points which are new, or in which M. Gendrin differs from the received doctrines.

THEORY OF MENSTRUATION. Under the first category of novelties we find the attempt to trace the menstrual function to certain conditions of the ovaria. The means of demonstration adopted are elaborate, and the doctrine itself deserves attention. The only rational means, says M. Gendrin, of coming at the proximate cause of menstruation is to ascertain the exact state of the internal organs of generation, with relation to the appearance and periodical return of the catamenia, and to compare these results with the different circumstances known to occur in the establishment, the suspension, or the final cessation of menstruation. With this purpose the author details the particulars of five dissections made in women dying during the menstrual period, and then examines the state of the ovaria, 1, prior to puberty; 2, after the menstrual flux has ceased at the critical age; 3, the state of the ovaria of women who menstruate regularly; 4, their state in such as have interrupted menstruation; 5, their state in those in whom suppression has been consequent on chronic maladies. As instances of death during the catamenial flow are comparatively rare, and the appearances rarely described, we shall give an abridgment of the whole of the five cases detailed by M. Gendrin.

"**CASE I.** A woman, æt. thirty, subject to mental excitement at the menstrual period, hung herself, as the husband stated, at the epoch of menstruation. The mucous membrane of the vagina and the cervix uteri were very vascular. The substance of the uterus was much injected; its cavity contained mucus tinged with blood. The inner membrane was lined by fungiform villi of a grayish colour, especially at the fundus, which villi were a line in length and best seen under water. The *right* Fallopian tube and ovary were natural. In the latter were three Graafian vesicles, from half a line to two lines under the surface. The left Fallopian tube was dilated, so as to be a line in diameter, and was filled with a bloody mucus, which extended to the funnel of the fimbriæ which it filled. The left ovary was injected at its surface, and about three lines in the middle of which a jagged edged rupture was visible about a line in diameter. Its cavity could contain a hemp-seed; its walls were intensely red. It was obviously a broken Graafian vesicle. Four Graafian vesicles existed at various depths in the same ovary.

"**CASE II.** A girl, three of whose relations had committed suicide, flung herself out of a window while menstruating, fractured her skull, and died in an hour. The hymen was entire. A slight quantity of blood was found in the vagina. The mucous membrane of the vagina and the os tinæ were deeply injected. The uterine cavity contained blood and mucus. Its surface was covered by villi, which, when viewed by the microscope, were red and fungiform; their extremities bulbous, one line in length: no vessels were seen on them. The Fallopian tubes were filled with red mucus, the left for half its length, the right in its whole extent, up to the fimbriæ, which were fixed to the ovary. This organ was covered by a thick mesh of admirably-injected vessels. A small circular jagged orifice led to a cavity two lines in diameter, the walls and bottom of which were of a vivid red colour. The network of vessels in the ovarian surface increased in density until it became uniform in tint near the rupture. Three vesicles, two of which equalled hemp-seed, the third a pin's head, in size, were in this ovary. The largest was near the surface, the smallest about one line and a half beneath it. The left ovary contained five vesicles of the size of a millet-seed, at varying depths: there was a yellow spot in which no cicatrix could be detected. The red mucus in the Fallopian tube was examined with a lens magnifying 150 times, but no organized body could be discovered in it.

"**CASE III.** A girl, æt. twenty-seven, at the third day of the menstrual pe-

riod, had her arm torn off by machinery. The catamenia, which usually lasted six days, were suppressed, and she died in thirty-six hours after the accident. There was no particular injection of the mucous membrane of the vagina or cervix uteri. The uterine cavity contained a small quantity of sanguinolent mucus. Its inner surface had but a feeble show of villi at the fundus. The Fallopian tube contained a little mucus, of a pale rose colour. The right ovary had two imperfectly-healed cicatrices, one of which was nipped and led to a small central cavity. The other was of a yellowish tint. A small red cavity, one line and a half deep, was found under this scar. A few vessels crept over the ovary; there were five unbroken Graafian vesicles in the left, and only one in the right ovary.

"CASE IV. A girl, twenty years of age, had for three days laboured under double pleurisy and pericarditis. On the fifth day of her malady the catamenia appeared, but became suppressed in twenty-four hours, and she died three days after. The vagina and cervix uteri were natural; a clot of half-coagulated blood was found in the uterus. No villousities were discoverable by a lens on the uterine walls. The two Fallopian tubes were filled throughout their extent with colourless mucus. The right ovary had a small rupture, one line and a half in diameter, leading to a cavity of the diameter of two lines, the walls of which were red and flocculent, and its orifice surrounded by a vascular meshwork. A single Graafian vesicle was found in this ovary. The left ovary had no cicatrix nor Graafian follicle: it was only half the natural size, and weighed but twenty-three grains.

"CASE V. A woman, æt. forty-four, who had borne three children, was attacked with apoplexy, leaving incomplete palsy of the left arm and constant headache. She was regular, and her menses appeared on the 11th July: on the 12th she was attacked by giddiness, loss of sensibility, &c., and died in the night. There was effusion of blood in the lateral ventricles of the right side. A coagulum filled the uterus, which was half as large again as natural. The inner surface was filled with villousities apparently vascular. The left Fallopian tube was dilated and filled with red mucus. Its fimbriæ were fixed to the ovary, on the surface of which was a little rupture two lines in diameter. Bloody mucus penetrated through this and filled the cavity. The cavity examined under water equalled one line in diameter, and was the centre of a vascular spot, which was four to five lines in diameter. In the right ovary there was no lesion; it contained two vesicles in the ordinary state. The left had three of the size of hemp-seed." (Tom. ii. pp. 18-21.)

Here, then, we have five cases of death during menstruation, in each of which there is a rupture of a sac, presumed to be a Graafian vesicle. The inner membrane of the uterus has a villous surface developed on it. The Fallopian tube is found dilated and filled by a sanguinolent mucosity. All this apparatus is periodically called forth and is periodically extinguished; and if we look to the length of that period it will be found to increase our wonder, since the rapidity is no less remarkable than the extent of the changes produced. A woman in good health menstruates seven days, and then remains free twenty-one, so that this healing of a cicatrix, and the clearing away of the villi lining the uterus, together with the preparation and obtrusion of a fresh vesicle for the forthcoming period, are to be carried on all in the twenty-one days of inter-menstruation. This intense and incessant activity, this mushroom growth and decay, is of itself sufficiently startling, and would make us examine with great caution before we adopt the theory of M. Gendrin.

We proceed with the examination of the ovaria in their immature or impubic state; in the modification produced in them by the cessation of

menstruation at the critical period; and by the suppression caused by disease.

There is no canal in the Fallopian tube at ten years of age. M. Gendrin admits, however, the great difficulty of ascertaining the presence of a canal in the Fallopian tube in very young subjects, owing to the tenuity and shortness of this organ. He asserts that no Graafian vesicle was found in the ovaria previous to puberty, except in three instances of girls rather more than twelve years old, who at the same time had never menstruated. In each of these the Fallopian tubes were perforated, and had the relations seen at a riper age with the ovaria. The vesicles, of the size of a pin's head, were deeply imbedded in an undeveloped ovary. There were from one to four in each.

In women who have outlived the critical age, as it is termed, the ovaries are known to become atrophied. M. Gendrin says that they are converted into a condensed cellular tissue, containing many cavities, while the outer layer, or tunica albuginea, assumes a fibrous texture. No traces of the cicatrices of corpora lutea are visible on its shrivelled and irregular surface. The Fallopian tubes also become thin, the canal large, as its fimbrial end, and impermeable at its uterine extremity. These latter assertions are founded on injections of quicksilver made on two subjects only, and they are further qualified by the difficulty M. Gendrin felt in determining how far the permeability of the Fallopian tubes was owing to the laxness of texture which permitted the stylet of the syringe to force a new path or to find the old one.

M. Gendrin has assured us that for years he has neglected no occasion in examining, at his hospital, the state of the organ we are now discussing. His generalizations want neither vigour nor extent; they may be said in common parlance to be sweeping: it is to be lamented, therefore, that this portion of his treatise should rest on two facts on which the author himself cannot rely.

With regard to the state of the ovaria in those who have regular menstrual periods, he says that the Graafian vesicles are nearer the ovarian surface in proportion to their size; that cicatrices are found varying from the freshest red in colour, with a most decided irregular cavity, to a pale yellow spot, scarcely disturbing the level or polish of the ovarian surface. "In every instance where the patient has menstruated from one to more weeks before death, an occurrence which in acute maladies is anything but rare, we have always found the cicatrix more vascular and recent as the period was shorter." (p. 25.)

The ovaria in women who have interrupted menstruation either contain no vesicles or only small ones deeply imbedded in them. In two instances only, small cells with red smooth sides, filled with a sanious matter, existed; and around their orifices there was the same kind of vascular patch as in the rest. The one of these patients died of encephalitis, after a three months' suspension of the catamenia, the other of typhus, after two months' cessation of the periodical discharges.

M. Gendrin asks whether in these instances the same inflammatory action which is apparent in the mature and superficial vesicle can also exist in the unripe and deep-seated one? "Or, perhaps, the disposition of parts is the result of a modification similar to that which accompanies

the menstrual flux, with this difference, however, that this action is profound and, as it were, latent." (p. 26.)

The influence of chronic diseases may be such that the flux shall occur at distant intervals or be quite regular, or it may cease entirely. Each of these three states M. Gendrin asserts may be recognized from the appearances in the dead body. When it has long ceased, the Graafian vesicles are either non-existent or few, small, and deep-seated; the ovaria themselves being small, irregular, unvascular, and atrophied. This wasting is further recognized by the extreme diminution of the ovarian vessels, and coincides always with the absence of the Graafian vesicle.

When the catamenia appear at irregular intervals there are generally Graafian vesicles in the ovaria. In one instance, in which the flux occurred only six days before death, there was a reddish yellow cicatrix on the surface of the right ovary. The two ovaria are never atrophied in the same degree; most often one is sound and contains vesicles, while the other is decayed and without them.

As for those in whom chronic disease does not interfere with the regularity of the catamenia, the ovaria exhibit the same lesions as occur in acute maladies.

Such is the scaffolding of facts raised, by means of which M. Gendrin means to erect his philosophic structure, or, to drop metaphor, to arrive at the following conclusions—showing the special conditions of the ovaria under which the "menstrual hemorrhage can alone occur:"

"A. Conditions necessary for the capacity to menstruate:

"1. The normal development of the ovaria and Fallopian tube, which takes place at puberty and lasts till the critical age.

"2. The presence of Graafian vesicles in the ovaria, which are more mature the nearer they are to the surface.

"B. Conditions necessary for the appearance and actual presence of the flux:

"1. The presence at the surface of the ovary of one or two inflamed cells, evidently resulting from a rupture of a vesicle which is in the progress of cure by the reparative inflammation.

"2. The dilatation of the Fallopian tube, and its position still very near the ovary.

"3. The repletion of the Fallopian tube with mucus more or less bloody.

"4. The presence of sanguinolent mucus, or grumous blood in the uterus.

"5. The manifestation of fungiform villi, which are probably vascular, on the surface of the uterus.

"6. The turgescence of the vascular system of the ovary, Fallopian tube, the uterus, and vagina, in the last of which organs it may be recognized during life; also the turgescence of the mammæ.

"C. Conditions where the menstrual flux has terminated, and during the intervals between the periods:

"1. The greater or less cicatrization of the ovarian alveoli.

"2. Corpora lutea, the remains of a cicatrization completed, which De Graaf had attributed to a previous fecundation.

"3. The progressive development of Graafian vesicles, and their progressive approach to the ovarian surface.

"D. Conditions of the menstrual flux, as yet unestablished before puberty, or having ceased after the critical age:

"1. The absence of the ovarian vesicle.

"2. The non-development, or the atrophy of the ovary.

"E. Conditions for interrupted or regular menstruation :

"1. The Graafian vesicles small in number, and removed from the ovarian surface.

"2. When the flux has taken place, the existence of ovarian alveoli more or less cicatrized, and the absence of Graafian vesicles of a certain degree of development, situated near the ovarian surface.

"F. Conditions of menstruation suppressed for a certain time by some morbid cause :

"1. The total absence of Graafian vesicles, whether deeply or superficially seated.

"2. A greater or less degree of atrophy of the ovaria and Fallopian tubes.

"G. Conditions where menstruation has never been established :

"1. Absence of Graafian vesicles, and the atrophy of the ovaria and Fallopian tubes." (pp. 27-9.)

The general conclusions to be drawn from these researches are : that menstruation is only a periodical phenomenon of a function commencing with puberty and ending with the critical age—which function consists in the production and development of vesicles in the ovary, that is, of a matured ovum, which is periodically brought forward, either to be expelled with the menstrual flux by the uterus, or to be destroyed by rupture and inflammation. This last act being the termination of the formation and of the evolution of each vesicle, and of the contained ovule, cannot be continuous : it is accomplished at regular epochs ; and it is to this act, to which the hemorrhagic turgescence of the genital organs is attached, of which menstruation is the result. (p. 29.)

The disposition of the Fallopian tubes, which was found in Case II. fixed to the ovary during menstruation, suddenly interrupted by death. The known function of this organ is to receive the ovule. The active consociation of uterus and ovary, marked in the act of menstruation in this case precisely as in conception, by uterine turgescence and "travail organique;" the constant presence of inflammation and a broken vesicle in the ovary—all these circumstances lead to the presumption that, on this occasion, the Fallopian tube receives the ovule and transmits it to the uterus.

It is not true, and Home had asserted it already, that the rupture of a Graafian vesicle is dependent on fecundation alone ; this occurs at each menstrual period. (p. 33.)

The menstrual flux is connected, therefore, with the maturation and periodical expulsion of an ovum. But the proximate cause of the discharge is genital hyperæmia and the formation of uterine villi, which Jörg first described. The analogy between spermatic impregnation and these phenomena varies as to what becomes of the ovule : if it is destroyed in the ovarian cell, that is a special termination of menstruation and not of conception ; if it passes into the uterus, not having the conditions of life in it, it is not fixed but passed off with the flux. (p. 33.)

The theory which has been just adduced, if the facts be complete, must modify profoundly, as M. Gendrin himself asserts, our notions of the function of menstruation. It accounts, in some measure, for the acknowledged fact that impregnation generally takes place most readily just after the menstrual period. It connects, as cause and effect, the uterine periodical flux with the ovarian function, and so throws some light on the connexion between menstruation and the capacity of fecundation.

The chief objection which occurs to us as militating against M. Gendrin's views arises from the following consideration: If at every menstruation an ovule escapes from a ruptured Graafian vesicle, the cicatrices of corpora lutea must be much more numerous than we find them to be. Supposing a woman to menstruate once in every lunar month, thirteen ovarian ruptures will occur annually; and unless we suppose that the wound so caused at each period is completely healed before a new solution of continuity takes place, we should find the ovaria of a menstruating female, one would think, indented and filled with numerous excavations in different states of reparation. That such is not the state of the ovaria, as seen by M. Gendrin, his cases which we have abstracted prove; that such ought to be their state, if the observations of the supposed discoverers in this branch of physiology are to be relied on, might be easily shown. These observations tend to prove that the ovarian wound caused by the escape of an ovule is either recognizable in its open state or as closed by a substance called corpus luteum, *for nearly two years*. If this be true, we ought, in adopting M. Gendrin's hypothesis, to find in this period nearly twenty-six scars or wounds, many of which would be open, while others would exhibit the various states of a cavity undergoing the process of reparation peculiar to a ruptured Graafian vesicle. We have ourselves repeatedly seen the corpus luteum in those who have died after childbirth, and can corroborate the fact, attested by Meckel and many others, that it is distinctly visible at least for twelve months. Indeed, reference to all the original facts bearing on this point, an excellent digest of which may be seen in Burdach's Physiology, prove that the healing of a ruptured Graafian vesicle is a long affair, and that the cicatrices are visible for so extended a period of time, that were ruptures of these sacs as frequent as menstrual periods, the ovaria must be in a state of perpetual open wound—"a sort of internal issue."

Another objection, though in our opinion by no means a conclusive one, may be urged from the alleged fact of the number of ova being limited to about thirty in the human female: although this opinion of Haller's has obtained the sanction of Burdach, it cannot, we think, be proved. It has arisen from indirect inference rather than from direct evidence. Few women have borne more than thirty times, including miscarriages: this fact, together with another, namely, that in proportion as the human female approaches to the critical age, so the visible number of Graafian vesicles diminishes, has probably led to the above surmise of Meckel and others. In the researches of Dr. Martin Barry, noticed in our Seventeenth Number, there are some most elaborate and apparently accurate microscopical observations, from which it would seem that the ovaria of all the mammalia are filled with minute ovisacs, as he terms them, as thick as are the ova in the roe of a fish; and which, he asserts, are constantly developing and decaying. The objection resulting from the supposed limitation in the number of ova in the ovary may be looked on as inconclusive. We incline to the belief that this number is variable, without pretending to affix to it the narrow limit of Haller and Leveret; nor the enlarged precision of Roederer, who estimated it at fifty; nor the countless multitude assigned by Dr. Martin Barry.

If there is such a succession of ova lost, and wounds inflicted, as M. Gendrin supposes, we may ask, What becomes of the assertions of

Haller, Ruysch, De Graaf, Santorini, Duvernay, Heister, and Meckel, that they especially directed their attention to the discovery of corpora lutea and never found them but where fecundation had taken place? "I have examined," says Meckel,* "the ovaria of pregnant women, as well as of the female of various classes of animals, in more than 200 cases, and have found, without a single exception, that the number of young and that of the corpora lutea exactly corresponded." This assertion of Meckel's excludes the formation of corpora lutea from any other sources than fecundation. Indeed, he combats the contrary notion by stating that "yellow substances may be found in the ovary, but every yellow substance is not, therefore, a corpus luteum."

Blumenbach, Cuvier, and Home have given instances, however, of the coexistence of corpora lutea with the presence of an intact hymen; and, besides the examples adduced by M. Gendrin, others are readily found in the medical collections where these yellow bodies have been seen in the ovaria of children.

We have thus stated some of the objections which arise against the sweeping generalizations of M. Gendrin. We give these credit for ingenuity and for their foundation on some valuable facts; but we say that though the profession are indebted to him for calling their attention to the subject of the menstrual function, yet his case is not proven. It is very probable that the theory of Cullen, that the ovary is the governing organ in the menstrual impetus, will prove ultimately the true one; but a complete review of the subject, so as to unite the positive observations of Haller, Meckel, &c. with those of modern embryologists, is still in reserve for science.

That M. Gendrin should have found the ovaria ruptured in five cases where menstruation was present is a remarkable coincidence. In a communication read at the Medico-Chirurgical Society by Dr. Robert Lee, last year, a similar occurrence was stated to have been met with in two instances. We want but a few more such facts to establish M. Gendrin's hypothesis; or at least to give it the aspect of a law rather than that of a mere coincidence; and until these are obtained we would again repeat "not proven."

And now for a few words on M. Gendrin's originality. In Dr. Churchill's *Outlines of the Principal Diseases of Females* (p. 63), it is noticed that Dr. Friend, in his *Emmenologia*, alludes, so early as 1729, to the influence of the ovaries in menstruation. Dr. Power, in his *Essays on the Female Economy*, attributes menstruation entirely to the action of the ovaries. It has long been known that on removal of the ovaria the menstrual flux ceases. Such a case is related by Pott, and another more recently by Dr. Montgomery. In our Sixteenth Number (p. 531) we have quoted precisely this very theory of M. Gendrin's, as entertained by Mr. Jones, who has also referred to dissections made by himself and friends in proof of its correctness. Mr. Jones does not inform us whether these observations were made without any knowledge of M. Gendrin's opinions. We find, too, that Mr. C. Negrier, the Professor of Midwifery at Angers, has claimed this discovery of M. Gendrin.† It appears that

* *Handbuch der Menschlichen Anatomie*. Vol. iv. p. 686.

† *Gazette Médicale de Paris*. No. xlii, 1839, p. 672.

he wrote a Memoir on this very subject, and read the same at the Medical Society of Angers so early as 1832. This memoir was transmitted to Paris in April, 1838, and read by Adelon, Paul Dubois, Ollivier, and others; it was also left at the publishers many months for the purpose of *being copied*—all this before 1839, the date of M. Gendrin's second volume. Nevertheless, that gentleman denies that he ever saw M. Negrier's work; asserts that he does not know whether the two sets of observations are parallel; and that, if M. Negrier made his discovery in 1832, he, M. Gendrin, made his in 1828.*

Having thus laid down his physiological principles, M. Gendrin enters on the subject of functional disorders of menstruation, at first generally, throwing into the front of his more special descriptions remarks on topics bearing on most of the maladies of the genital system.

As menstruation is a function originating and ending, says M. Gendrin, in the ovary (p. 38), the hemorrhage attending it is to be looked on as an intermitting phenomenon, differing in nothing from any other habitual sanguineous flux; and curative indications founded on this alone are, therefore, insufficient. This statement, it will be seen, though a direct consequence of his theory, is in fact only the repetition of the commonly received notion, that menstruation is not a simple discharge from the uterus, but the effect of a foregone constitutional act, the seat of which is unknown. All the phenomena of menstruation but the mere exit of the secretion may and do often take place periodically.

AMENORRHŒA. This disease, according to our author, is the result of suspended ovarian function, that is, we presume, there is no disengagement of an ovum from its Graafian vesicle. In scanty menstruation the ovule is disengaged, but the fault is in the uterus. (p. 39.) These observations savour too much, we think, of system. The cause of the deficiency in the ovarian function is traced to agencies acting beyond the sphere of the ovary: 1, to the influence of the nervous system; 2, of the circulating system; 3, to alterations in the blood itself:—facts which we admit in every point save in the doubtful inference that these changes first affect the ovary, and through that the menstrual function.

It is well known that a moral shock will suspend the catamenia—for what will not the nervous system affect? No less true is it that diseases of the heart and vascular excitements of various kinds disturb the periodical discharge; and most pathologists are agreed that the quality of the blood is altered in amenorrhœa, while some view this alteration as the prime cause of the malady. The curative indications, therefore, in amenorrhœa, are to look to the cause of the disease, and not to found a treatment on means the object of which shall be merely to force an uterine discharge. Derivative bleedings, strong emmenagogues, are, says M. Gendrin, hurtful; and we agree with the general statement, affixing,

* A celebrated biblioplist, now dead, used to designate the monomania under which certain rich and respectable elderly gentlemen laboured, of abstracting from their friends' shelves and cabinets, the editio princeps, or a proof above price, as "condiddling," a term which, as combining a refined classical affix with the strenuous vernacular of the hundreds of Drury, marks the distinction of "abstraction" by those who have received a liberal education and those who have not. M. Raspail has, we observe, very strong misgivings as to the means by which the scientific ardour of the "confrèrerie" is nourished, as he has compelled his publisher to append, by way of index, to the last edition of his valuable work, the date at which every sheet of MSS. was sent to him!

however, this limit to it, that in any functions composed of many steps the induction of one will draw on the rest. Thus, simple irritation of the os uteri will often as effectually produce labour-pains in a pregnant womb as rupture of the membranes; and so likewise will warm hip-baths by simply determining to the hypogastrium, give rise first to a scanty sanguineous discharge and then to the regular development of menstruation. Nevertheless, M. Gendrin's rule is both scientific and practical, and infinitely safer and better based than the silly ingenuity evinced by Amussat in his recommendation of an exhausted cupping-glass to the os uteri!

IMPERFECT MENSTRUATION. In this state the uterus and not the ovary, says our author, is in fault; for there are all the signs of the ovarian nismus in the weight and tension in the pelvis, and the scalding and heat in the act of evacuating the bowels and bladder. This being satisfactorily determined, M. Gendrin would have us bleed generally or locally, and apply emollients and vapour baths, to solicit the rigid fibre of the plethoric; while in the weak and cachectic the bloodletting might with advantage be omitted. Here is just one of the points in which a specious theory may induce pernicious consequences. Whether the person suffering from scanty menstruation be weak or robust, the cause, according to M. Gendrin, is still a defect in the vascular system of the uterus, and the remedies are, consistently with this view, confined to such as will unload the vessels.

Now we confidently appeal to general experience, whether, in the scanty flux of debility, the surest and the most rapid recoveries do not take place by means of a course of chalybeates—of medicines, therefore, which, were M. Gendrin's practical inferences true, ought to increase the uterine phlogosis.

M. Gendrin dwells at some length on the effect of acute and chronic diseases on menstruation. Generally speaking, when an acute malady suspends the flux, we have all the signs of plethoric oppression, and the blood is determined to that organ which is the seat of the intercurrent malady. Here M. Gendrin recommends the sound practice of attending to the new disease, and not troubling ourselves as to "deriving" to the uterus. When the superinduced disease does not suspend but merely diminishes the discharge, then we have the old theory—the *crambe decies repetita*—that the uterus and not the ovary is in fault, and you are, therefore, to attend both to the uterus and to the intercurrent disorder. We would advise the practitioner, whether the malady suspends entirely or merely diminishes the menstrual flux, to treat the malady which has thus interfered with the function, and regard everything else as quite secondary to that.

With respect to chronic maladies, M. Gendrin has but a few words; but they indicate a great truth little appreciated in this country, where active practice is synonymous with judicious practice. "In chronic diseases the cases are few which require the use of active measures, and we may always without risk postpone our remedies; the rather because the therapeutics of chronic diseases, to be efficacious, should be slow, prolonged, and chronic, like the malady itself." (Vol. ii. p. 47.) "Acute disease, acute treatment—chronic disease, chronic treatment," may recall to many the ponderous witticism of Dr. Johnson, "who drives fat oxen must himself be fat," still we maintain that there are few truths in prac-

tical medicine more important than that here enunciated by M. Gendrin as to the chronic treatment, as he happily terms it, of chronic diseases.

We will not enter into the discussion as to whether the presence of the menstrual flux should interfere with the use of powerful remedial measures, such as bleeding, emetics, and purgatives; nor will we stop to analyze the chapters on Dysmenorrhœa, under which term the author has included vicarious as well as painful menstruation; on which heads M. Gendrin is prolix, without adding anything to our knowledge: we pass on, therefore, to the consideration of uterine hemorrhage, a subject occupying more than half of M. Gendrin's second volume.

METRO-HEMORRHAGE. Under the term of metro-hemorrhage M. Gendrin includes: 1, Excessive menstruation; 2, Hemorrhage occurring under conditions of the frame which usually precludes it, as, for example, hemorrhage before puberty, or after the critical age, or during gestation and lactation; 3, Puerperal hemorrhage. Of these divisions the last, or puerperal hemorrhage, claims, from its interest and importance, the greatest attention. We hasten, therefore, to it, collecting in our way such things as we can glean from out of the mass of words and systematic subdivisions with which this volume is overwhelmed.

Metro-hemorrhagia (we adopt M. Gendrin's learned barbarisms to save time) has always precursory symptoms, which in the main are the same as those marking the catamenial flux: weight in the loins, headach, general uneasiness, nervous agitation, obtuse colicky pains, and, occasionally, diarrhœa. The intensity of these symptoms differs in different individuals. There is no difficulty in recognizing the case in persons who ought to have no discharge, for the existence of the hemorrhage points to the malady; but when the patient can menstruate, the diagnosis between the natural and the morbid flux is often difficult. The discharge is the effect of disease if it be too rapid or too prolonged, *provided the constitution is injuriously affected by it.*

Metro-hemorrhage is a very common complication of the puerperal state. The following is M. Gendrin's account of the lochial discharge:

"It is not furnished solely by the uterine vessels disengaged from the placenta, and influenced by time and the condition of the uterus to contraction. A portion of the fluid arises from slight lacerations of the cervix. A few hours after labour the discharge is slight, and though constant yet in gushes accompanied by the painful discharge of clots. On the second or third day the exudation is serous mixed with mucosities, which become more and more abundant, taking on at last the sanious character of an inflammatory action which never fails to exist in the uterus after labour. When the "milk-fever" occurs, the last traces of hemorrhage cease, and no more is seen till the establishment of the menses." (p. 92.)

This is not an exact account. The lochia are at first sanguineous; after a few days, generally from three to nine, there is a sero-sanguineous discharge without any mucous admixture, and then it ceases more or less entirely. The order of appearances, namely, first blood then serum, is more constant than the term of duration. The milk-fever, as M. Gendrin calls it, occurs about the third day: it is certainly coincident with the rapid filling of the mammæ; but Cruveilhier, who calls it the "traumatic fever," attributes it to the changes necessary in repairing the wounded uterine surface. The sanious discharge of M. Gendrin is not a phe-

nomenon of health but of disease; where it takes place the layer of new skin applied to the placental spot is decomposing. When pus exudes—and we have seen it exude in large quantities and in its most “landable” form—the uterine wound is healing by the process of suppuration and granulation. The history of these changes is important, inasmuch as they throw much light on the mode of origin of puerperal fever.

The lochial discharge may readily be converted into a metro-hemorrhage: it may be looked on as a malady if after the lochia have assumed the serous character they take on the sanguineous. During lactation no discharge of blood from the uterus is usual; when it occurs it produces an effect on two constitutions, that of the nurse and nursing. The former is affected with the general precursors of menstruation; the latter is purged, or there is colic, or there is convulsion. The fact is, that the milk is altered in quantity and quality, becoming scanty, thin, and serous. In those who do not nurse, the regular period occurs about twenty-eight days after the day of actual parturition; and in the weakly, the luxurious, and plethoric, the uterine state favours a profuse flow. If this be not medicated, the foundations of prolapsus and even of malignant disease arise out of the conditions of a congested uterine texture.

The course of metro-hemorrhage is either acute or chronic; when acute, whatever be the epoch, whether after parturition or during the catamenial flux, it is a malady grave in its existence and in its consequences. It may be termed chronic when it begins in a less stormy way but increases progressively until it amounts to a flooding. Sometimes there is a mixture of the acute with the chronic flux, the former appearing as an exacerbation of the latter. With these local appearances there are two sets of symptoms, one attending the discharge in the form of weight in the loins, feverishness, headach, disordered digestion, &c.; in the severer cases, fainting and impending death: the other the result of mere loss of blood, so well described by Dr. Marshall Hall. M. Gendrin has not traced the connexion between menorrhagia and the alterations induced by it in the uterus itself, an omission of great moment, and one we cannot in our limits supply: a glance at the subject might mislead; a detail would be misplaced. Suffice it to say that whenever there is long persistent uterine flux the practitioner should examine the womb, and he will usually find in the softening of the cervix and enlargement of the fundus uteri an organic cause for such persistence.

Neither has M. Gendrin alluded to a form of chlorosis which, allied as it is to purpura, is a source of hemorrhage. At page 107, however, he has noticed the enlargement of the uterus and its occasional ante-version, a displacement, by the way, which in a slight degree is very common; and he has also hinted at the connexion between hemorrhage and organic disease of the womb.

M. Gendrin asserts that metro-hemorrhage not only is a cause of sterility but that if conception occurs abortion will follow: an observation with which we fortify our own experience.

The qualities of the blood, according to our author, change as the disease proceeds. At first the fluid is rich in fibrine, but as more is lost it becomes serous and incoagulable. Sometimes the discharge is completely serous. It occurs generally in chronic flux; nevertheless, we have known it, with great astonishment, assume all the characteristics

of a severe flooding, and the woman perish. We have also repeatedly observed what M. Gendrin affirms, that it is accompanied with all the symptoms and consequences of the catamenial discharge.

With regard to the *etiology* of metro-hemorrhage, M. Gendrin says it is but a modification of menstruation, owing to an increase in the intensity of action of these causes which produce the natural monthly flux. As a proof he quotes the known facts, that neither in the period before the age of puberty nor that after that, termed critical, is hemorrhage common; that, further, the symptoms of the natural and diseased discharge coincide, as do likewise the period of their appearance. Another predisponent cause is in the uterine texture, filled as it is with a meshwork of veins. Its situation and anatomical connexions expose it to mechanical shocks, while its functions subject it to excitement, which at once calls into most powerful action both its nervous and vascular systems. M. Gendrin notices the sanguine as well as the nervous temperament as predisposing causes; he remarks, too, that it is hereditary. "We know a family in which all the daughters have, for three generations, been attacked with hemorrhage between the sixth and eighth years of age, one alone excepted; she had repeated epistaxis." (p. 113.) The presence of the malady becomes a cause of its ready reproduction at a future time. Indeed, both the quality of the blood itself and the condition of the vessels altered by hemorrhage are favorable to sanguineous exudation. Besides these causes, M. Gendrin has noted with systematic prolixity those depending on the *acta, circumfusa, applicata, ingesta, animi pathemata, pathologica*; and under the last head he mentions that biliary disease will often produce menorrhagia.

With equal minuteness the prognosis and diagnosis are detailed. The description of the malady would have been benefited by a transposition of many of the paragraphs inserted here; while these two heads of the subject would have gained in vivacity of thought and compactness of matter what they lost in bulk and the ostentatious display of "common place" in the husk of philosophy.

The therapeutics of metro-hemorrhage are founded by M. Gendrin on no less than eight considerations; and these eight are put forth in a style of stilted pedantry which would have annihilated Jean Jacques Rousseau or Voltaire, or any of those authors who have made the French the most transparent medium of thought which now exists. M. Gendrin has completely smothered his native language in barbarisms; a vice which we would not notice did we not find our own mother-tongue be-Frenchified and be-Germanized by a systematic petty larceny at second-hand. Those who know the influence of words on thought will feel it a duty to resist the inundation of expressions which in our modern medical works muddle the pure stream of English and obscure the intellectual treasure it conveys. It is difficult to reject what has now unfortunately been naturalized among us; but we may still stop short of excesses like those of M. Gendrin's—an example of which from the first two indications just alluded to we present: "*Le molimen hæmorrhagique qui s'accomplit sur l'utérus pour l'accomplissement physiologique de la menstruation.*" In this sentence there is scarcely a word of French. It would be unintelligible to the non-medical portion of his countrymen, and not very clear to the student, since two theories (*molimen hæmorrhagique* and

accomplissement physiologique,) are indicated, neither of which are elementary and perhaps not definite. The opening sentence of the next paragraph begins with "L'action stimulante que les causes proëgumènes et occasionelles des metro-hæmorrhagies," and is followed up by a thick interspersion of Greek among a few half-starved French words.

However (to return from the form to the matter of our author's work), there are eight considerations derived from the causes enumerated. We have to appreciate in any given case the influence: 1, of the "molimen hæmorrhagicum," i. e. the effort of the constitution to produce the flux; 2, the occasional causes; 3, the uterine structure; 4, the habit of body as to plethora; 5, the degree of uterine congestion at the commencement of and during the menstrual discharge; 6, the facility with which the vascular system of the uterus lapses into passive congestion; 7, the immediate effects of the discharge in giving rise to bloodlessness or hysteralgia; 8, the modifications induced in all these circumstances by age.

The first indication is to withdraw the patient from all circumstances which are favorable to the production of hemorrhage, by enforcing the horizontal posture, by moderating excess in temperature and in nervous action, by freeing the circulation from mechanical pressure, by attention to diet and the due regulation of the bowels; these means, constituting the method of "expectant medicine," are alone sufficient for cure in the minor examples of this malady.

In more grave cases, where the subject is plethoric, venesection must be resorted to in quantity sufficient to destroy the fulness of the vessels. In those who are feeble in constitution, small bleedings repeated at intervals of a few days, while they do not disturb the forces, eradicate the evil. And M. Gendrin recommends most justly the abstraction of blood to be made in all cases just before the menstrual period. Where venesection is useless or inadmissible, leeches should be applied to the neighbourhood of the vulva, either to the hypogaster, the loins, or the anus, especially if the patient is subject to piles. In addition, M. Gendrin recommends derivatives to portions of the body having no direct vascular connexion with the uterus as stimulants to the arms and shoulders. "*Menstruas si velis sistere, cucurbitulam quam maximam ad mammas appone,*" says Hippocrates. M. Gendrin uses dry cupping, by applying two glasses for twenty minutes every hour, beginning at the chest and carrying them down the arm and to the hypogastrium.

These means may be furthered by such agents as quell the local uterine action, as cold water applied to the pubes and vulva or injected into the rectum. M. Gendrin objects to the use of the plug except in severe cases, inasmuch as the mechanical irritation keeps up the vascular. In the chronic form of this malady the indication should be long persisted in. Venesection in very small quantities may be required, but the strength of the patient is especially to be regarded. Where the disease has produced much feebleness from loss of blood, while the patient neglects none of the precautions of the expectant method, tonics must be boldly given, steel, bitters containing tannin, astringents, the mineral waters of Tonbridge Spa, &c.; and if the practitioner sees fit, he may then resort to the nostrums which M. Gendrin has signalized, as cinnamon, sabine, the bark of the green orange, &c. We ourselves place much reliance on the ergot of rye and on vegetable acids. Purgatives of the aloetic kind

are proscribed, and justly, by M. Gendrin; but he takes no notice of those of the saline kind, as sulph. magnesiae, than which nothing is more useful if given three or four days consecutively just before the expected period. Opium in the menorrhagia of nervous subjects is a great remedy.

UTERO-PLACENTAL HEMORRHAGE. This is the term used by our author to designate that uterine flux which occurs or may occur during the period of childbearing and childbirth. The whole subject is carefully considered, and some points brought out in a more salient position than is usually met with in books; still the vices of composition, apparent in the preceding chapters, are not omitted here. There is the same proximity of detail and a similar intricacy of method, the former exhausting all patience, the latter destroying all simplicity and clearness. We shall cull the facts for the reader just as they occur, page by page, utterly despairing of bringing those which would serve mutually to illustrate each other into one point of view.

According to M. Gendrin, the physiological conditions of the uterus during gestation are favorable to flooding, inasmuch as there is not only a natural congestion but also a natural hemorrhage in the interchange of the molecules of blood between the maternal and foetal systems. Hence the frequency and the importance of the accident. The symptoms and the results on the frame are always of the same kind in every species of "utero-placental" discharge; but there are great differences as to the mode of manifestation and the succession of the phenomena in each—varieties which hinge chiefly on the fact as to the connexion between the ovum and the uterus. This connexion may either be normal or abnormal: the former when the placenta is attached to any portion of the uterine walls but the cervix, the latter when the placenta is implanted on the cervix.

A. HEMORRHAGE WITH NORMAL IMPLANTATION OF THE PLACENTA. This occurs most frequently before the twenty-fourth week of gestation, and generally coincides with the epoch at which the woman would have menstruated had she not been pregnant. This last remark of M. Gendrin is fully borne out in our own experience, and is strongly recommended as a basis of action. The precursory symptoms of discharge are those of uterine "hyperæmia," heat, fulness, and spasm of the womb, and sympathetic irritation of the bladder, kidneys, and rectum. The development of the muscular fibre of the uterus lays the foundation of spasm of that organ, and deceives the woman into a belief that the motion felt internally is attributable to the movements of the child, which, as M. Gendrin justly observes, is from its gelatinous state incapable of such action. These spasms soon become painful, and are accompanied by erratic flushes of heat and cold. After a few days the flux of blood is ushered in by weight of the loins and small of the back, feebleness, and fever. In severer forms there is great inequality of the circulation and even syncope; and usually in advanced pregnancy inordinate movement of the child. The blood may appear either externally or be concealed within the womb. This is a most important distinction as to practice.

1. *In external or open hemorrhage* the blood may flow continuously or in interrupted jets, accompanied by grinding pain in the hypogaster

and loins. With these pains an early ovum is rapidly expelled; but a longer period is required in a more advanced state of pregnancy. To this general description we would add a practical point for the junior practitioner: if there be flooding alone, or pain alternating with ease alone, abortion does not necessarily take place; but if there be both discharge and intermittent pain, the chances are that the ovum will be expelled. It is always to be wished that the whole ovum should be expelled at once in early gestation. A small portion of placenta or membrane left in the uterus will excite a flooding which, even at the third month, we have in more instances than one known as deeply affecting the actual and the future health of the sufferer. If the hemorrhage does not cause expulsion of the ovum, it may still determine its death; a knowledge of which fact we can acquire with greater certainty in proportion to the advanced state of gestation. At all periods, however, there are symptoms the presence of which lead to the inference of suspended gestation: these are—1, the disappearance of those symptoms which had hitherto accompanied pregnancy, such as sickness, &c.; 2, cessation of development in the breasts and abdomen; 3, irritative presence of fever, marked by a feeble, hurried, unequal pulse, sunken features, tarnished skin, disordered hepatic function, and diarrhœa; 4, the uterus is flabby, the fœtus motionless, and not easily moved by the impulse of “ballottement.” These cases are very troublesome, from the perpetual anxieties they cause both to patient and practitioner. They rarely go to the full time, yet occasionally they do. The labour is not, however, more liable to hemorrhage, although the puerperal state is to its worst fever, than where the abortion takes place at once. The worst examples, however, in our own experience occur in twin cases, where one of the children has been blighted some weeks previous to birth.

2. *Latent or internal hemorrhage* during gestation is much rarer than external or open flooding. The author speaks of its occurring frequently in the early months of pregnancy; and the general tenor of his context would lead us to believe that it then was similar in its march and effects to internal hemorrhage in the later months of childbearing. Such certainly is not the fact. The uterus before the sixth month is rigid, indistensible, and incapable of holding so much blood as to endanger the life of the patient; and very rarely or never, but in the extremely feeble constitution, does the latent hemorrhage cause the specific danger of an internal and concealed flooding. In a more limited sense, however, we agree with M. Gendrin when he classes under latent hemorrhage those effusions of blood which take place in the placenta or the uterine membranes, giving rise to subsequent abortion and the death of the fœtus. These are similar to those effusions into the lungs of adults known as pulmonary apoplexy, and affect the immature organism by means analogous to the process of destruction in the mature one, viz. in speedily destroying life by impeding the vital changes of the blood.

The symptoms of latent utero-placental hemorrhage shall be given in the author's own words:

“The primary symptoms of latent hemorrhage are precisely the same as those characterizing the open flux; nevertheless the lumbar pains are severer and seem to threaten the expulsion of the ovum. There is at the same time a sense

of general discomfort, feebleness, cold sweats bedewing the temples, chilliness, and such a tendency to fainting that the patient often is thrown into a continuous state of 'demi-syncope,' in the midst of which nausea or vomiting produces complete prostration. These symptoms are variable as to duration, but they rarely last longer than four or five hours, and still more seldom do they flow in one uninterrupted course of increasing intensity, but are broken by intervals of remission, during which the patient suffers only from debility and general discomfort. The face, however, becomes paler and the pulse more feeble." (p. 172.)

The symptoms are often less urgent, and recur at intervals of six or eight hours, each paroxysm being preceded by a repetition of those lumbar pains, those tremors, &c., which formed the precursory signs of the first attack. If the blood extravasated into the womb be in a certain quantity, it may become sensible to the external touch. Levret, J. Hopff, Leroux of Dijon, Baudelocque, have severally felt an accessory tumour jutting out the uterine walls.

M. Gendrin notices the union of sensible and latent hemorrhage, under the designation of "demi-latent," for the purpose of stating that the expulsion of the ovum is generally in such cases certain, and accompanied, during the whole process, with a discharge, entailing on the constitution the effects of an abundant flooding.

If, in spite of these discharges, pregnancy persists, the fœtus may remain in utero, as a foreign body, causing a valetudinary state of health, characterized by symptoms of incessant impending abortion: or there may be a gradual increase of the volume of the uterus, dependent on a chronic latent hemorrhage, when all the rational signs of pregnancy have ceased with the blighting of the fœtus. In these instances, the limbs become anasarctous, the digestion difficult, the body enfeebled and meager, the bowels relaxed, the urine scanty, and, finally, hectic fever sets in with a tendency to fainting. This state of things may endure up to the full period of gestation, bringing the patient to the brink of the grave by their exhausting influences. The placenta is found to be, in every instance, larger than in natural labours, its increased bulk being dependent on blood which has become imbedded and entangled in its cellular texture; and with this mass a large quantity of grumous fluid is usually expelled. These labours are less subject to subsequent hemorrhage than any others, a fact quite accordant with our own experience, and one explicable by that *chronic disruption* of the utero-placental bonds, which affords sufficient time for the vessels of the womb to retract and become obliterated.

There are cases of a fatal termination to latent hemorrhage. Some of these M. Gendrin has narrated, and they are well worth attention; indeed the whole subject of latent or, as we term it, internal hemorrhage, is not sufficiently known in all its bearings in this country, although it is by far the most difficult and appalling of the more serious complications of gestation.

"A woman who had remained in the clinic of a private teacher two days was brought," says M. Gendrin, "to our hospital, for pains which seemed to announce labour. She was in her seventh month of pregnancy, and hitherto had not experienced any untoward symptom. The pains were slight and occurring at distant intervals. In order to hasten birth, ergot was given, but without effect. On the second day, all the symptoms of loss of blood being

present, she was brought from the private clinic to the hospital. The abdomen was soft, the uterus reached to the epigastrium, its os was closed, and neither the beat of the foetal heart nor the placental murmur could be heard with the stethoscope. The patient expired in two hours. The ovum was found enveloped in a mass of blood, partially coagulated. The placenta had been torn from its uterine connexions by coagula, which covered two thirds of the upper part of the chorion. A zone, of about three inches in breadth, of adherent chorion formed a dam between the clots and the uterine orifice. The placenta was infiltrated with blood. The liquor amnii was slightly red. The foetus appeared six months old, and exhibited no trace of decomposition. The umbilical vessels, veins, and arteries were distended with coagulated blood." (p. 180.)

In another instance Albinus found the central portion of the placenta pouched out with blood, which had nevertheless not destroyed its marginal uterine adhesion. We are acquainted with an example in which the patient was seized at the seventh month of pregnancy with constant faintings and all the symptoms of internal hemorrhage. Delivery was forcibly produced, and the amnion was found filled with coagula. In our own experience these dangerous forms of latent hemorrhage, prior to the ninth month, are rare. They are seldom wholly internal in early gestation; seldom, therefore, do they put the practitioner in doubt as to the course of action requisite to save his patient. Where the flooding is concealed, it is of the greatest moment to arrive speedily at a knowledge of the fact. But how is this to be done amid the tumult of anxieties which, in these disastrous examples, spring up in the lying-in chambers to perplex the practitioner? We have been accustomed to watch with extreme care the state of the respiration; for unless the gush be at once immense and sudden (a rare case) the lungs exhibit the effect of flooding, before the brain gives way or the pulse alters much. The long-drawn frequent sigh, the repeated indraughts of air which take place in incessant yawning, prove that the balance between the lungs and the heart is disturbed, and this alone has often induced us to linger at the bedside to ward off a hemorrhage which we knew by these signs had already begun. And let it be remembered that these early moments are those on which health and life hang. The uterus is yet full of contractile power, and readily reacts now; while a few enlarged gushes, unrestrained, exhausting irritability, render hemorrhage a cause of additional flooding.

Among the earliest symptoms, then, of loss of blood is some unusual state of respiration; and in an interval, (whose length is modified by the velocity of the flux, its quantity, and by the previous constitutional state of the patient,) the pulse begins to falter, and the brain to become dizzy with faintness.

3. *Flooding during labour.* The remarks and details of the author are here neither many, important, nor new. In one form of this complication the blood issues externally, and the labour is not suspended. The placenta, on separation, is found to have an adherent clot attached to it, thus pointing out the spot of disruption. In a case of Mauriceau's, the coagulum was of the size of two fists. In other examples the labour is suspended by the grave effects of the loss of blood. In a third form, the flow ceases to be visible; but, nevertheless, is accumulated within the womb, which first does not contract, and then becomes soft,

distended, and flaccid, amid all the signs of hemorrhage already noticed. In all these varieties of flooding, the infant may be affected; and in some, respiration after birth is established but slowly, unless the labour shall have been rapid. In proportion to the advance of gestation is the danger of the effects of flooding. It is rarely fatal before the sixth month. Many, however, remain long enfeebled when the drain has been excessive; the slightest disorders become serious, while some, says M. Gendrin, become prone to uterine congestions, menorrhagia, and to its consequences, frequent abortions.

B. HEMORRHAGE, WITH ABNORMAL IMPLANTATION OF THE PLACENTA. M. Gendrin has the following observation in the very second paragraph of this chapter: "So long as the dilatation of the uterus is confined to its body, that is, from the first to the fourth month of gestation, abnormal implantation of the placenta is unattended by any accident." Now, admitting, with a few authorities, that even from the commencement of pregnancy there is something like a placenta, still the traces are such mere sketches, that the majority of observers have always stated that this organ is non-existent till the third month: hence it is not the want of dilatation of the cervix uteri previous to the fourth month which can be said to prevent flooding. The period at which, in our own experience, we have most often noted its commencement, is after the seventh month. We have never known it as early as M. Gendrin says, viz. after the fourth. In a few instances we can corroborate his statement of the flooding beginning only with labour at the full time. We can also bear our testimony to the fact, that the placenta is not implanted, centre for centre, over the os, in the majority of cases. A lobule, or a portion somewhat larger, edges over the funnel-shaped cervix uteri. The two most remarkable signs which we would notice are the existence of the first gushes, unattended by uterine pain, and their occurrence independent of any assignable mechanical cause. In several instances the flooding has occurred at night when the patient was asleep. The subsequent course of placental hemorrhage is marked by intermissions of a fortnight, then a week, and ultimately by incessant slight discharge, with occasional slight gushes. The foetus is always in jeopardy and often is killed; but we have no experience as to the assertion of M. Gendrin, (p. 193,) that the flooding ceases as soon as the child is dead, and that labour takes place after this event: we, however, doubt its justness.

Besides the indication furnished by hemorrhage occurring at shortening intervals, without apparent cause, during the latter months of gestation, the os uteri does not, previous to real labour-pains, differ much, judging by the touch, from the natural state. It is perhaps more "*cushiony*," but the head of the foetus in not felt; still this negative sign may be the result of some other presentation of the foetus. With labour-pain, however, the case is cleared up; the dilatation thence induced permits us to feel the spongy placenta, and to become sensible of the cause, which, indeed, was readily to be inferred from the gushes of blood coinciding with uterine contraction, and ceasing in part with uterine relaxation. Fortunately, uterine contraction in these miserable cases is almost invariably slow, while the dilatability of the lower segment of the viscus is usually facile. No one need be reminded of

the extreme danger, both to mother and infant, in these cases. But there are others where, although the placenta be abnormally implanted, still the hemorrhage ceases and labour proceeds naturally. The fact noted by M. Gendrin we have also observed, viz., that all the signs of "placenta prævia" may have existed during the latter portion of gestation, and yet the labour terminates quite naturally. A portion of the placenta has become detached, and a reparative process has closed up the open-mouthed vessels so as to preclude further bleeding: such is M. Gendrin's explanation in the cases to which we allude. We have found the cessation of the flux to have been dependent, during labour, on pressure of the child's head on the flap of placenta. Wigand (*Geburt. des Menschen*) has given us six or eight examples of genuine placenta presentations treated by plugging, in every one of which the labour was effected naturally, and without any the least dangerous hemorrhage.

The following extract is a recapitulation of the appearances produced by hemorrhage on the ovum:

"1. If the hemorrhage be slight, one or more deposits will have taken place; the placenta, preserving its natural texture and development around them.

"2. If the hemorrhage be so considerable as for the blood to have become infiltrated into its whole substance, disorganizing it, this viscus and the foetus are converted into a foreign body. The latter being killed becomes atrophied, dry, and diminished in size, and suspended in a mass of stratified blood. Sometimes the internal flux continues slowly, in which case the placental mass enlarges, by addition of fluid, and ultimately is expelled in the form of a spongy body, penetrated and surrounded by a great quantity of liquid blood.

"3. If the hemorrhage be rapid, coagula surround the ovum, and sometimes lacerate the placenta and membranes, and in a short time the mass is expelled." (p. 210.)

The quantity of blood which may be poured out on the centre of the placenta without detaching its edges from the uterus, we have seen, in the case of Albinus, to have been sufficient to cause death. M. Gendrin quotes another remarkable case of the same kind:

"A woman, thirty-six years of age, the mother of many children, and in her eighth month of pregnancy, had a violent cough and fever. Being seized with labour she sent for the midwife, who, after twelve hours of travail, saw her patient fall into the most alarming state. M. Delaforterie was sent for, but arrived only after her death. He instantly performed the Cæsarian section with every requisite precaution; and on opening the fundus uteri witnessed the escape of a gush of blood, which he estimated at three 'chopines' at least. This fluid left a large pouch between the placenta and uterus, into which M. Delaforterie, on introducing his hand, was satisfied that the placenta had preserved its natural marginal adhesions with the womb. The fundus of the latter organ exhibited no trace of rupture. There was no blood in the vagina; the uterine orifice was little dilated. The child, though extracted alive, lived only a few seconds." (p. 211.)

The extent, however, of this extravasation, must be considered as remarkable as its mode of inclusion. Usually, says M. Gendrin, the clots imbedded in the placenta are small, seldom exceeding in bulk a pullet's egg; oftener they are smaller, and interspersed over the placental surface. They are of a yellowish-gray colour, solid, and, as it were, fleshy; they are, he adds, very common, and would have

been oftener noticed were not the examination of the placenta habitually neglected. Their smallness accounts for the safety of the mother, while their presence will explain the debility of the fœtus in many instances, and the atrophied state of the organ, at once impeded in function and restrained in bulk. We would strongly recommend these observations to the reader. Nine tenths of the abortions are produced by the effects of a disordered utero-placental circulation. We believe, however, that the yellowish-gray masses, described by Gendrin, are, in some instances at least, a disease of the placenta itself, independent of effusion. Such placenta we have repeatedly examined, and found all those changes going on which are visible in the conversion of cellular membrane into bone: in one part, perhaps, a little thickening, in another a yellowish cartilaginous texture; in a third spiculæ, which feel like bony texture. We need not add that in such examples the after-birth has been adherent, and the child ill-nourished.

In these effusions of blood into the placenta, M. Gendrin remarks, that the liquor amnii is usually reddish; and the infant what is termed blighted; and though retained in utero, its arrestation or death is usually coincident with the first symptom of hemorrhage. These observations tally with our own experience.

With regard to the lesions observable in the placenta where that organ has been implanted on the os uteri, M. Gendrin has dissected, since the year 1824, forty-two such examples. The following observations merit great attention; we must, however, abridge them:

"If the placenta is implanted only in a small extent over the os uteri, the portion so engaged is as friable as the spleen, but looks like the lungs when thrust by pleuritic effusion against the vertebral column. The spongy tissue is obliterated and rendered homogeneous by blood incorporated with it. This, the simplest alteration, is observed only when the hemorrhage just precedes or even accompanies the expulsion. In cases where the flooding has occurred at distant intervals, there is a larger segment of placenta implanted, and the alterations are various in three points, viz. 1, the centre; 2, the intermediate zone; and 3, the outer margin of the organ. The central portion is condensed, homogeneous, granular, grayish-yellow in colour, readily friable, and intersected by white filaments, which extend in ramifications to the uterine surface, but are lost in the yellow layer; which does not present, throughout its thickness, a single point of redness. In the midst of the homogeneous tissue small reddish-black clots are seen, usually in great numbers, not separable from, but confounded with its substance. These small clots ordinarily penetrate to the chorion. The surface of the placenta, in these altered portions, presents white spots of a few lines diameter, having the aspect of those tuberculous deposits found on the peritoneum. The intermediate zone of placenta is red, with coagulated blood infiltrated into, and incorporated with its texture. It is much softer and more friable than in the healthy organ. Its homogeneous appearance is broken up by cysts of blood of varying depths. The exterior zone has the same aspect as that described as exhibited in partial implantation of the placenta." (p. 217.)

From this description M. Gendrin concludes that the lesions mark the epochs of hemorrhage, the central zone being the result of the earliest. The other lesions depend on ruptures produced either by the uterine expulsive efforts, or those incident to extraction by the accoucheur.

M. Gendrin ascribes the hemorrhage "unavoidable," as it is termed,

not to separation but to rupture of the placenta from the uterus. The alterations into the yellowish-gray matter just noticed is a process of reparation by means of which, as already observed, the flooding of the earlier months is stayed during the latter; and the labour, though a placental one, is not necessarily hemorrhagic.

Causes of utero-placental hemorrhage. Pregnancy, by establishing a natural congestion in the uterus, must of course be regarded as the predisposing cause of the flooding which often attends it. Menstruation, too, or the habit thence induced, is another; and we have before assented to M. Gendrin's remark, that the floodings of gestation coincide, for the most part, with what would have been in the unimpregnated state a menstrual period. Besides these, there are certain temperaments which predispose to uterine bleeding: 1. The sanguine: marked by a powerful circulating apparatus. 2. The lymphatic: characterized by a languid transmission of the blood by means of a feeble heart and arterial system, by a great development, on the other hand, of the capillaries, and by a large though feeble frame. 3. The nervous: fragile in form, pale in aspect, but full of pains which flit from organ to organ: these women, for the most part, are subject to irregular uterine gushes, from extreme uterine irritability.

Mechanical causes acting on the uterus, it is well known, will produce flooding; but there must be a predisposition to it, judging from the numerous examples in which the concussion does not end in discharge. Nevertheless, Smellie has noted this result as succeeding violent vomiting; Van Swieten, sneezing; and others have remarked a similar effect as resulting from the spasms of an hysterical fit.

Moral impressions of a violent or intense kind, whether exciting or depressing, doubtless must be accounted as frequent and effective occasional causes.

M. Gendrin notes the disappearance of varices from the limbs as inducing uterine discharge; and also remarks the tendency of hot, hip, or foot baths, drastic purges, bleeding in the foot, &c. as producing flooding.

Our author next passes to the consideration of diseases of the uterus as causes of hemorrhage. He relates that it occurred once after inflammation, once where fibrous tumours were contained in the uterine cavity, and in a third case where the cervix uteri was much enlarged; but the most frequent of this class of causes, he thinks, is inflammation of the ovaria and Fallopian tubes: indeed he would connect this state of these organs and uterine flooding almost as a constant conjunction. We ourselves have found that "the elongated cervix" is both accompanied by menorrhagia in the unimpregnated and flooding in those who have become so in a few instances.

The influence of polypus has been very marked in the two examples where it existed as a complication of labour—though in a third case, in which the polypus was of great size, no flooding took place. We have known several examples in the practice of others of very large fibrous tumours not causing inordinate discharge. As to inflammation of the ovaria, Boivin attributes one class of abortions to the adhesions formed by the Fallopian tubes hindering uterine expansion. We have not remarked the coincidence between flooding and inflammation of these

organs, or perhaps we have overlooked it. There are many physiological facts, however, which would incline us to receive it, if not with all the exclusive faith of our author, yet with much.

The anormal insertion of the placenta is, according to our author, a very frequent cause of uterine hemorrhage. Madame La Chapelle says it is the sole cause of flooding in the latter months of gestation. Rigby, of Norwich, found, in 106 of this last class, 46 resulting from the anormal implantation of the placenta near the os. According to M. Gendrin, unless this position of the placenta be very obvious, it is usually overlooked by accoucheurs.

Proximate causes. The early hemorrhages have for their proximate cause the disruption of the vascular connexion between the decidua and womb. Both deciduæ, the true and the reflected, are, says M. Gendrin, vascular. In spite of M. Velpeau, we too adopt this view, and have tried the experiment of W. Hunter of spreading a piece of these membranes on a sheet of paper and holding it to the fire, to show us, in its black streaks, that blood coagulated which had flowed in its very thin vessels. These very early hemorrhages are not unfrequently thought to be a retarded menstruation bursting out with more than ordinary violence precisely because of the retardation. If they occur in married women previously quite regular, or if a woman has been regular both as to time and quantity of discharge two or three consecutive months, and then there follows a retardation as to time and an increase as to quantity, it is advisable to treat such persons as having suffered early miscarriage, in order to give them a chance of gestation as well as of conception.

M. Gendrin gives us three ingenious conjectures as to the causes of the anomalous implantation of the placenta: 1. The orifice of the Fallopian tubes may open nearer the os than the fundus uteri—a fact observed by him in the dead body; he nevertheless does not attach much weight to his own conjecture, neither do we. 2. The ovum may glide too low. 3. The thick mucus contained in the Fallopian tubes may project too much behind the decidua, and so permit the ovule to descend.

From the second to about the twelfth to the fourteenth week, we know that the deciduæ are approaching each other until they coalesce at the last-named period. During this time the circulation in the maternal vessels of these membranes is ample: hence any of those causes which act in the production of menorrhagia cannot fail to influence the chances of uterine hemorrhage at this point of gestation.

From the twelfth week a double vascular organization is going on, in the formation of a foetal and a maternal placenta. On the maternal side the decidua serotina is thicker and more vascular than any other part of the caduca lining the uterus, and on the fetal side the umbilical vessels have begun to climb into the villi of the chorion, to form many tortuosities, and twistings, and knobs. In this way the two systems of circulation mutually interproject, without ever commingling directly their several fluids. This early type of the placenta is the permanent formation in the horse, in which animal we have repeatedly seen that the chorion, vascular in all its surface, is in juxta-position merely with the vessels of the lining membrane of the uterus; that its vascularity is equally diffused, and that the union between them is just what may be represented by the apposition of two wet cloths.

At the middle period of gestation in the human female the maternal placenta is more than a third of an inch thick. Its vessels have two peculiarities: they are first very thin—so thin as to be, according to some, mere prolongations of the inner membrane of the uterine veins. According to Stanley and Mayo, the column of maternal blood is carried into canals formed by thin projections of the decidua. Whatever opinion be adopted, this is true—that the decidual vessels are very thin. The second peculiarity is that they expand into pouches at their extremities. The circle formed by the line at which the decidua vera becomes reflected into the decidua reflexa, constitutes the limits of the placental discs; here the union with the uterus is most intimate. This collar, conterminous with the edges of the placenta, is more solid in the earlier months; hence the known difficulty of abstracting the placenta in abortion. It becomes less intricate as gestation advances; hence the comparative facility of removing this organ. In the early periods of placental formation, the maternal disc is as thick as—M. Gendrin says thicker than—the foetal, but gradually becomes thinner towards the latter end of gestation; from which circumstance he would deduce the cause why the fœtus is more independent of hemorrhage in the end than at the beginning of pregnancy.

Uterine turgescence is next viewed as a proximate cause of flooding, or as M. Gendrin calls it in his margin, “cause immédiate.” Now, though there cannot be two immediate or proximate causes of any effect, still we may look on the expression as indicating a condition without which flooding could not exist—the “*causa sine qua non*” of logicians.

The first change determined by conception is afflux of blood into the whole generative apparatus from the ovary to the os tincæ; and this afflux continues with such unceasing vigour that in the last months of gestation the uterus may be looked on as an erectile tissue, between the internal and external strata of muscular fibre of which a layer of thick, very short, but capacious veins is interposed. These veins are so short as to pass for cells; but they resemble exactly the distribution of the cells of the corpora cavernosa penis, which Tiedemann has proved to be a congeries of veins. The arterial distribution is also copious, and may, at a glance at William Hunter's plates, be thoroughly appreciated. The termination of these veins on the foetal placenta and the decidua, their size, so expressively named “sinus,” their number, friability, present to the student an apparatus for circulation, in any derangement of which he will readily apprehend why the effect should be so terrible as to have deserved, even at the hands of the common observer, the appropriate appellation of a “flooding.”

We may fairly then grant that with such a supply of blood, and with such an arrangement, the vascularity of the uterus must be considered as an immediate cause of its hemorrhage. M. Gendrin after giving a very incomplete description of the uterine muscles, seeks in their spasmodic action for another influential agent in hemorrhage. Spasms are irregular contractions; irregular contractions may tear up the placental or decidual organs; hence hemorrhage: such is his position, strengthened by the fact that the patient experiences not unfrequently violent movements which precede the visible or the latent flux. We admit in theory this cause. In practice we have known uterine spasms occur for months daily, in

spite of large opiates constantly administered; and rarely, indeed never, have we seen them occasion flooding. The agency of the muscularity of the uterus is especially preservative: these fibres are the natural ligatures to vessels, which without their contraction would sluice away life in a very few seconds: still, however, we admit the theoretical probability of irregular uterine contraction being followed by hemorrhage during gestation. After childbirth, irregular contraction, in its broadest acceptance, combined with partial or total separation of the placenta, is indeed the commonest condition of flooding. We differ with M. Gendrin when he states his disbelief of the uterine spasm, so often noticed by women as "violent motion" of the child, being really in most cases actual fetal movement: we have, in the severer complications of labour, in convulsions, in hemorrhage, felt this fetal movement and known it to precede the death of the infant; while, in other examples of flooding, we have had every reason to believe that the flooding *preceded* the movement, which though it certainly existed as uterine, was caused by and did not cause flooding.

Placenta prævia. M. Gendrin now proceeds to consider how hemorrhage takes place in placenta prævia, (p. 267;) and the speculations are to us new and curious. It is usually thought that in these cases the necessary expansion of the cervix uteri, in the latter months of gestation, tears away the connexions between the placenta and womb, and thus freeing the uterine sinuses, gives rise to "unavoidable" hemorrhage. M. Gendrin, however, takes just the opposite view, and asserts that the flooding is owing to ruptures, not of the uterine vessels from the edges of the placenta, but of the central parts of this last organ only. According to him, the circle sketched out on the womb by the reflection of the decidua vera into decidua reflexa, is the limit of the edges of the placenta; that this organ never overslips this limit; that the expansion of the womb increases the capacity of this circle without altering the original fixture of the circumference: in a word, that the placenta does not grow by extending its edges, but by increasing its centre in the increased space formed by the expansion of the fundus uteri. Now, if the placenta be fixed, from first to last, to the cervix uteri, as long as the cervix dilates and is accompanied by just as much placental development as will fill the increased uterine space, no hemorrhage will ensue; and this happens during the first half of gestation, when, though the cervix uteri begins very early to expand, still no bleeding occurs. In the latter half of gestation, however, the neck of the uterus does not expand so rapidly as the placenta grows: the result is "that the placental adhesions are necessarily destroyed from the centre towards the circumference of the cervix. The mucous membrane of this last part is separated from the placenta by a mere layer of mucus; then it is, that there are transudations from the placental vessels. If the placenta be attached by its edges to the cervix uteri, the separation of the sides of the neck breaks up the placental cotyledons; as much by the distension they suffer, as by the endeavour to become engaged in the cavity of the cervix." (p. 269.)

If our paraphrase of M. Gendrin's views be correct, he believes that the bleeding in placenta cases is from ruptures in, or exudations from the placenta almost always, and not from denudations of the uterine sinuses. The anatomical details already given of the state of the

placenta in such cases, if exact, would afford some colour to M. Gendrin's speculations. Still we are inclined to retain our former belief, that the source of flooding in placenta prævia, is from this organ being torn by uterine expansion or contraction from the womb, and not from a rupture of the central parts of the placenta itself. It is true that many of the phenomena of these miserable cases will be explained by either theory; that, for example, the gushes attendant on labour-pain, and ceasing when the uterus ceases to contract, may equally exist under a supposition that the placental rent is further lacerated, or the coagula stopping it removed by the expansive action of the os during uterine contraction; as by the old supposition, that this contraction has created fresh separation between the vessels which formed the connexion between the womb and the placenta. Under either theory, we say, the remittent gushes coincident with remittent uterine action are accounted for: but surely the mass of blood lost is maternal, which would scarcely be the case if it came from a rupture of the after-birth: the very tangled and interlaced texture of this organ makes the flux from rupture comparatively slow. We must remember, too, that the placenta is made up in bulk by fetal vessels, among which the deciduous maternal vessels are placed; hence the escape of any one infant, in ruptured placenta, is, under the theory of M. Gendrin, scarcely possible, and yet a certain number are always saved in placenta presentations. We have delivered both by perforating the placenta in its centre, and by separating its edges, and have found the flux of blood much greater in the latter than in the former cases; so much so, that where the mother had already lost much, we have invariably on the grounds of a less, and a less rapid hemorrhage, preferred perforating the placenta to separating it, in cases where the implantation has been centre to centre.

Diagnosis of utero-placental hemorrhage. In all doubtful but important cases, it is necessary to make a thorough examination, and not to hesitate to introduce a part or the whole of the hand if requisite. Utero-placental hemorrhage may be distinguished from menstruation during pregnancy, by the presence of pain in the former, and its absence in the latter; by the periodicity and by the quantity of discharge. Sometimes there is a varicose state of the vagina, which would be liable to mislead those who do not examine the state of the organs themselves.

The diagnosis of placenta prævia, M. Gendrin says, is not so easy by the touch as books would make us believe, and we agree with him. In the first stages of labour, before the os uteri is much open, the kind of hemorrhage has been our guide to suspicion. Clots entangled at the os uteri prevent a due recognition of what is behind them; and mere curiosity must not have place in a case where the removal of a clot may be followed by a fatal gush; still, the absence of the resistant sensation which the fetal head affords, even through the uterine walls, coupled with the kind of hemorrhage, is generally deficient in the last weeks of pregnancy, to leave few doubts as to the case. When, during early labour, the os uteri is open, the unequal spongy substance of the placenta is readily, we think, known; but M. Gendrin adds a very valuable sign of diagnosis, if it be well made out, viz., that there will be felt a pulsation at the os uteri, not synchronous with that of the mother's pulse, but with the quick measure of the fetal heart. We have

never as yet tried this: indeed, in placental cases, he who takes the earliest period in which it is possible to deliver, will be the safest practitioner, and we rarely could venture to do otherwise. A second mark is the impossibility of producing *ballottement*, which M. Gendrin found in three examples: he, however, does not assign this as positive. We know of another instance corroborative of this diagnostic symptom. An eminent practitioner, now dead, being consulted in a case of doubtful pregnancy, detected every sign but that known under the name of "ballottement:" though, therefore, he could be sure of an enlarged uterus, he could not say positively whether such enlargement was owing to the presence of a fœtus: he gave it as his opinion, that if the woman were pregnant, the placenta was interposed between the cervix uteri and the head of the child. This sagacious surmise eventually proved quite true. Before, however, the ballottement be taken as a test of placenta prævia, and before the practitioner should indulge himself or the friends of his patient, in the gloomy anticipations attendant on such examples, he should be aware that this bounding movement given to the fœtal body floating in liquid, can only be produced with certainty between the five and a half and seven and a half months of gestation. Even then there must also be that adjustment between the developed weight of the fœtus and the quantity of liquor amnii, that the former shall be so nearly of the same specific gravity as the latter, as to be readily made to ascend and descend. If this proportion be not exact, and the fœtus be too heavy, it cannot be moved; and if too light, it will not descend: in either case the ballottement is imperfect or null. The stethoscope gives, we think, in placenta cases, a very doubtful diagnosis. In Dr. West's very neat translation of the younger Nægele's work on Obstetric Auscultation, it is asserted that in placenta prævia the murmur is heard loudest over the pubis. This sign can but be considered as an adjunct to others: it is very deceptive by itself.

The history of the case is, however, the most valuable diagnostic element. "Flooding, without pain, at decreasing intervals prior to labour, and flooding coincident with uterine pain, in labour," will be sufficient grounds for the strongest suspicion.

The diagnosis of internal hemorrhage is most difficult and most important. We have already slightly noticed the extreme value of changes of respiration, sighing or yawning, as indicating, prior to syncope, the presence of concealed flooding. Latent hemorrhage, in the early months of gestation, may be inferred from the following group of symptoms: sudden uterine spasm, a shivering fit, cold extremities followed by syncope actual or impending, accompanied or succeeded by "*tenderness* on pressing the womb." This condition ends by a discharge by the vagina of serum slightly tinged, and by slow recovery from fretful fever; or by a continuance and even aggravation of this fever, with a cessation of abdominal expansion, so as to lead to the suspicion of the death of the fœtus.

In the later periods of gestation when the womb is distensible, the quantity of blood effused being greater produces more marked effects—sudden syncope, or sudden diminution in the force, with increased rapidity of the pulse: then follow the effects of loss of blood—the

pallid cheek, hollow eyes, limbs bedewed with cold sweats, hurried respiration, great terror, and great helplessness. If now the hand be laid on the abdomen, the womb will be felt soft, doughy, obscurely fluctuating, flaccid, and *suddenly enlarged*.

Intermittent internal hemorrhage may be suspected by the presence of spasm of the uterus, by more or less of syncope, and the continuance of feeble health, only broken in on by those storms which threaten to sweep away the double life.

Latent hemorrhage, *during* actual labour, is known by the above symptoms of syncope and coldness, followed by the sudden diminution of the pains; by increased uterine bulk during the cessation of uterine contraction, and especially by that diagnostic of Levret, pain on pressing the uterine tumour.

Treatment. Our author divides cases of uterine hemorrhage into two classes: in the one those accidents have not as yet occurred which put a period to gestation; in the other, it is impossible to prevent the expulsion of the uterine contents. In the former cases the object of medication is to prevent labour; in the second to hasten it; while, at the same time, every means is resorted to to stop the flooding. In the first class, then, of cases, the first thing to do is to allay every symptom precursive of excessive uterine plethora. We are not to wait till there has actually been a flux before we act; it then is often too late; but our prophylactic treatment should commence with well-grounded suspicions of disordered circulation in the womb. The rules laid down by our author on this head are abundantly strict:

"Abstract even the slightest causes tending to keep up uterine congestion; remove every band which restrains the current of blood; let the patient assume the horizontal posture, from which she is to swerve neither for the wants of nature nor the toilette; the pelvis must be raised above the level of the rest of the body; the temperature of the room should be rather cool than hot; all causes which act directly on the uterus as well as all moral influences should be abstracted; all objects of undue interest and all intellectual occupation must be eschewed; the diet should sustain but not excite, so that the digestive organs should be called into a feeble activity only; the alvine secretions should, however, be sedulously regulated." (p. 306.) Such are M. Gendrin's directions: an excellent mark to aim at certainly; but he who expects to effect such a change in the excitable habits of the upper classes, as to induce them thus to vegetate, ought to furnish us with a recipe to control the ennui which preys on minds which are told to banish all feeling and all intellect. These little exaggerations of M. Gendrin are pardonable, however, and may be even commendable, if rightly appreciated, as including good directions for keeping the body and mind quiet, without attempting to torment the latter while you imprison the former. These means, says M. Gendrin, should be enforced for twelve weeks, when the placenta has a more developed energy and hold. If, however, the flooding continue in the fourth month, the same regimen must be enforced until the last month of gestation.

Bleeding is discussed cautiously by our author. He allows that it is a provocative of abortion injudiciously used, while, on the other hand,

it saves the plethoric from this result if timely employed: even in those uterine irritations, the common result of the congestion of pregnancy, he does not scruple to recommend the authority of Mauriceau who, in one case, bled eighty times during gestation. We are certainly one of those whose experience is not favorable to the use of this remedy in gestation. The cases must be well marked indeed which require general bleeding: on the other hand the greatest amount of plethoric ailment in the mass of women with child, yields to a cupping on the loins or to leeching. The nervous shock in the excited state of system induced by pregnancy is very great among the wealthier classes, and cannot be disregarded but at a woful sacrifice. Among the hard-fibred and indifferent, in cases, too, where there is no doubt as to uterine as well as general plethora, venesection may be demanded, but it should never be resorted to unless the indications be most positive. M. Gendrin, however, by stating the dangers of over-bleeding or of injurious bleeding, has neutralized the "*verba magistralia*" as to its employment. He puts forth prominently the increase of nervousness, the constant headache, the perpetual febricula, the deranged digestion, the uterine spasms reproducing uterine hemorrhage, the subsequent difficulty, not to say impossibility, of combating these "symptoms caused by the lancet" with any hope of success. (p. 312.) To these observations there are appended others indicating the great danger of inducing syncope in pregnant women; the necessity, therefore, of never bleeding but by a small aperture, and in the horizontal position; and, further, of never reiterating the emission save it be ascertained that the process of blood-making is rapid and certain.

With regard to the indications for local bleeding, our author names the constant presence of lumbar pains and the appearance of varices and hemorrhoids. Care must be taken to shun producing syncope, to avoid, also, bleeding when there is no local turgescence, as then the local emission produces, by attraction, local congestion.

Irritants are liable to less objections than depletants, according to M. Gendrin: hence he quotes Riverius as recommending sinapisms, dry cupping to the thorax, *mammæ*, hypochondria, and abdomen. Care should be taken, however, not to over-excite the nervous system; hence irritants rather than vesicants are to be employed.

Sedatives are a dominant indication in uterine flux. Having given repose to body and mind, cold should be used; and, first, the drinks should be all cool before they be gradually reduced to the temperature of ice. The solid food should also, according to our author, be cold. Cold, sponging, tepid cataplasms about the abdomen and loins, with the derivative treatment, are among the most successful means of arresting hemorrhage. The cold hip-bath, too, is very useful; but the temperature should be cautiously regulated to the feelings of the patient.

Our author having asserted that ovaritis induces uterine flux, recommends general or topical bleeding when, during pregnancy, these states are coincident; remarking, however, that the disorder of the ovary being kept up by the natural plethora of pregnancy, is rarely removed till the latter months.

If these means do not succeed, M. Gendrin makes an issue ("*exutoire profond*") at the lower part of the *linea alba*—a practice which we would

by no means imitate nor recommend. The distinguishing the symptoms of a turgid ovary from those incident to a plethoric uterus must be a nice point; the constant coincidence of uterine flux and ovaritis is yet to be proved; the only part certain, then, is the torment of a profound issue over the pubic region, inflicted by a gentleman who, three pages before, is recounting the dangers of simple irritants on the susceptible nervous system of the pregnant female.

There remains one other set of remedies which, added to the abstraction of blood, the use of cold and of revulsives, complete the treatment of the first class of cases, viz. *anti-spasmodics*: of these opiates are the chief. "We are not acquainted," says M. Gendrin, "with any therapeutic agent meriting more confidence than opium, whenever the uterus during gestation becomes the seat of spasmodic pains; nay, we never wait for the appearance of those shocks which give rise to these in pregnancy, and we resort to it whenever even there is an irritable nervous system." (p. 328.) Even when this valuable drug does not arrest it will mitigate the discharge. Smellie resorted to opium in all the serious hemorrhages of gestation, early or late. Twenty or thirty drops of laudanum will immediately arrest, says M. Gendrin, a flow of blood which threatens to throw the patient into alarming debility, portending an immediate fatal termination. In this praise of opium we most cordially join. There is scarcely a case of inordinate flux in which it is not the best remedy, save in actual labour, when it is only second to manual aid, which, let it be emphatically understood, is in these cases the first. In pregnancy the usual dose of opium may be advantageously increased, and its effects should always be sustained by a regular repetition of it. A more direct effect is produced on the uterus if it be administered as a lavement, while the stomach and liver are not disordered as by the usual mode of taking this medicine. M. Gendrin combines opium with syrup of orange peel, extract of quina, sulphate of quina, gaseous alkaline drinks, for the purpose of remedying these effects on the stomach. This practice of Hoffman and Riviere is of singular benefit, and enables the practitioner to continue for months the use of opium with great advantage.

With regard to the second class of cases, those in which gestation is interrupted, the chief indications are as to the means by which the flux is most speedily quelled, all considerations as to the preservation of the gestatory state being banished from our mind. If the child have been killed by the hemorrhage, but labour has not come on, the flux usually ceases; and though we do not state it so peremptorily as M. Gendrin, certainly there is not much hazard of a recurrence of flooding after the death of the fœtus. The labour at a later period is generally unhemorrhagic; hence in these cases the indications are to guide the constitution through that group of morbid influences which we have already described as attending the presence of a dead fœtus in utero. Premature labour should rarely or never be induced in these examples. M. Gendrin says that the woman, whatever may have been the actual loss of blood, need not, after the blight of the fœtus, be kept supine, except (he adds) in those very rare examples of a continuance of the flux. Where the intra-uterine flux has been extreme, inducing extreme debility, the indication is, according to our author, to gain time until the forces of the woman

shall have been recruited to withstand the chances of a renewed hemorrhage during labour.

If the hemorrhage take place in the early periods of gestation, the uterus not being capable of containing a quantity detrimental to life, the woman is not in danger so long as the flux is not external; hence, in the early months of pregnancy, those means must be resorted to which restrain flooding within that limit, so that it shall not become external; and we must wait the expulsion of the detached ovum by nature, and never, within these limits of internal hemorrhage in a small womb, must we provoke labour.

If after the fifth month of gestation flooding occurs, the effect is much more decided on the mother. If it be intense, the patient may succumb in a few minutes. These are cases never to be left until the hemorrhage ceases, or until the fœtus is expelled or extracted. When the flooding is external there is not so much chance, says M. Gendrin, of utero-placental lesion as when it is internal: there are examples, and these not rare, where after such a gush the woman has still brought forth at the full period a live child. But he wisely adds that these instances should not lead to the adoption of the expectant method by the hope of similar results to ourselves. The dictum of old Mauriceau should form the rule, a deviation from it the exception: "At what period soever of gestation the flooding exists, whether early or late, the most expedient and most salutary remedy for the safety of the mother and infant is to deliver as quickly as possible. When the blood is so abundant in its flow as to throw the woman into frequent faintings and convulsions, the operation is not to be deferred; it is absolutely necessary to deliver her whether she be at her full time or not, or whether there be pains or not; unless, by neglecting these sole means of safety, you will be content to witness the last wave of blood gush out at the same time with the last sigh."

There remains for the most dangerous case the operation of *forcing* the uterus and turning the child. Forcing is a term, however, rarely realized in English obstetrics. In hemorrhage, the os soon becomes flaccid, and requires no force for its dilatation. In those cases in which the delivery need not be instantaneous, M. Gendrin recommends, in common with most authorities, the rupturing the membranes, a practice first, we believe, adopted by Puzos, who waited for the bulging bag of the amnion before he punctured; while Smellie recommends the operation to be done as soon as possible. M. Gendrin says little or nothing on this very valuable remedial measure. Its merits, however, have been denied by some and exaggerated by others. Let us be distinctly understood, however, that the great—nay very great—majority of cases of flooding *during* labours are successfully treated by this mode of proceeding. Smellie, Baudelocque, Rigby of Norwich, and Merriman, have all given their assent to this practice. We believe that Hamilton of Edinburgh rarely recommended it. Of this, however, we only speak as former listeners to his lectures, the best we ever heard on midwifery. The exaggerators of the efficacy of puncturing the membranes as a remedy always successful have to answer for its indiscriminate use. It is not safe where the flooding is violent; it is not safe where the patient is much enfeebled; it is not safe where the fœtus does not present in its long axis; and

Boivin would add, that it is not safe where there is little liquor amnii and a large child, for the uterus then cannot contract—the sole object for which the membranes are ruptured. In those cases of hemorrhage during labour anterior to the rupture of the membranes, the examination should be made with the whole hand if requisite, and every point thoroughly determined before we proceed to any course of action. It is not always easy to perforate the membranes which in the commencement of labour often fit the child's head like a scalp. There has been a question whether plugging the vagina in cases of the kind now under discussion is not safer than rupturing the membrane. The quantity of blood pent up within the uterus, say the advocates of this mode of proceeding, must necessarily be slight, while the presence of the clots in utero and of the "tampon" in the vagina invariably produces labour-pains. So that while we preserve the membranes entire, we remove all those risks which arise in labours from premature evacuations of the liquor amnii. We confess we never have had the courage to attempt this course of action in similar cases. The reasoning is plausible, nay more, it has been supported by the practice of Baudelocque and others. In cases of placenta prævia, where we cannot dilate the orifice of the uterus, plugging is the only remedy; and it is so efficacious, that Wigand advises us to resort to no other, giving six or eight instances of the child having been born quite by natural efforts, as guerdon of his success. If plugging should be determined on, the operation should be so exact that not a drop of blood should escape externally. We never quit the bed-side whenever we have been induced to resort to the "tampon," and we would advise the practitioner to attend both to the rational signs of hemorrhage as well as to the sensible one of a *distending* abdomen, and to act accordingly.

We need not, we presume, guard against our meaning being misunderstood, by stating that plugging is only to be resorted to when the uterus will not contain blood enough to injure the mother, consequently it never should be used *after the birth of the child* from the seventh month to the full period. Before the birth of the child, however, and before the rupture of the membranes, the case may occur in which the "tampon" is our sole efficient remedy; and then it is highly probable, though we believe not certain, that the womb will not admit of much further distension without immediate reaction. We say not certain—because we have known the blood burst through the membranes into the amnion, and we have cited examples of its being accumulated in the centre of the placenta. These, however, are rare cases, and ought to make us act with caution while we retain the operation of plugging, not as superseding that of puncturing the membranes, but as suited to peculiar states.

As to the mode of action remedial of the hemorrhage incidental to abnormal implantation of the placenta, the following important observations of M. Gendrin must be stated in his own words:

"Hemorrhage always ceases as soon as expulsive labour-pains commence, in cases where a portion of the placenta only is fixed over the os uteri. (Smellie, t. ii. p. 247 and 356.) The same result takes place where the centre of the placenta is over the os, as soon as the expulsive uterine efforts have ruptured the amnion. Flooding only recurs if there be inertia uteri. We are astonished that this remark has escaped the greater number of accoucheurs. If a gush of blood

succeeds each uterine contraction, it is only in the first period of labour, and until the uterine contractions have become thoroughly established, in cases where the placenta is attached only by a segment to the os. When the attachment is centre to centre, then the flux continues up to the bursting of the amnion. This has been the course of matters in every case which we have seen. Hence we always hail the advent of true labour in placenta cases. We would thence also further deduce this point of practice, viz.—the necessity of producing labour artificially whenever the flooding is in quantity or by frequent recurrence likely to injure mother and child." (p. 348.)

This recommendation is precisely what is affected by all accoucheurs, when in these terrible examples of flooding they turn the child; but this, the usual course, is not the one which M. Gendrin advises. He resorts to a method which he has tested by actual experience as capable of saving both mother and child. The plan is, to evacuate the liquor amnii by passing the requisite instrument through the placenta and so puncturing the membranes. M. Gendrin has resorted twice to this operation, and has been twice successful: Let us abstract these instances.

"CASE 1. A fair young woman had a gush of blood at the sixth month, and three more during the seventh; for each of which she was bled by her attendant and thus reduced by the double loss to a state of debility so extreme as to make the upright posture in bed a cause of fainting. M. Gendrin being consulted, declared the case to be one of anormal implantation of the placenta, and recommended the puncturing the membranes, declaring that another gush of blood would kill her. The original attendant deeming the case one of mere congestion of the os uteri, resolved to plug the vagina, but while he was preparing the 'tampon' a fresh gush took place which at once induced M. Gendrin to introduce his hand into the cavity of the pelvis. He found the cervix uteri rigid, and permitting him only to pass the tip of his finger, high enough however to allow him to recognize the placenta. His original proposition occurred to him of evacuating the waters by puncturing through the placenta. A female catheter—"une algalie ordinaire de femme"—was the instrument used, which, with the greatest facility penetrated the amnion through the intervening parts, and the liquor amnii immediately escaped. The hemorrhage *ceased instantly*; but labour-pains did not take place till three hours after the operation; and in four more a child was born alive, which protruded the placenta before a part of its head and face. The uterus contracted well; a slight hemorrhage only occurred, which in the debile state of the woman threw her into a fainting fit which lasted fifteen or twenty minutes. It was two months before the patient could leave her bed. Ultimately both mother and child did well. The placenta when examined was found perforated about two inches from its margin: blood was incorporated with its tissue in a space extending over two or three inches of its surface, in the centre of which the perforation existed.

"CASE 11. In this case, the puncture was made in the seventh month of gestation. The 'algalie' penetrated the placenta obliquely, entering about two inches from its margin and coming out about five lines from the edge of the fetal surface. The infant died immediately after birth, but the mother not having suffered much previous to labour, experienced none of those accidents which occurred in the instances formerly related."

On these two examples M. Gendrin would base his recommendation to puncture, which, if not delayed too long, will, he says, be successful. Where it is not, and the uterus remains inert (the inertia he attributes to delay), the practitioner may still turn the child. This method, he adds, has the advantage over the *accouchement forcé*, that it is applicable in

any case, while the latter is, as we know, not always practicable before life ebbs away. We leave the further consideration of this method to our readers. That it is a valuable hint communicated in good faith and on high authority there can be little doubt.

That every aid to the practitioner in these terrible instances is a blessing, we acknowledge most thankfully. There is enough, both in the nature of the case itself, and in the source of the remedy, to make us carefully note the reasonings and facts, and to prepare us to attempt the same in similar circumstances. It is, however, untried, at least comparatively so, when opposed to the usual practice of immediate delivery by the hand. In the majority of cases, the mother is easily and instantly saved by this operation, and not unfrequently the child. Where this is practicable it should be done. The delay attending all other modes of proceeding, the dreadful anxiety of waiting for effects which we cannot calculate, the watching those points of time laden with the fiat of life or death, are persuasions to immediate action. There are occasions, however, in which the flooding is great and yet the introduction of the hand impossible; and it is in these in which we think M. Gendrin's plan should be tried. We call it M. Gendrin's plan, because it is fairly and substantively put out as a determinate course of action in certain cases; still, neither the suggestion nor the practice is his. Mr. Ingleby of Birmingham has given us a summary of this practice, at p. 157 of his book, from which it appears that Dr. F. Ramsbotham recommends rupturing the membranes in partial implantation of the placenta over the os, that Dr. Cusack performed this operation in similar cases six times; and Dr. Blundell, also, has resorted to and advises it. M. Gendrin is distinguished from these by a more distinct and a more extended recommendation of the operation, whatever may be the position of the placenta as to the os uteri.

We have conned this remarkable volume, leaf by leaf, from beginning to end. That it is the work of no common man is apparent in each sentence. It abounds in a patient display of materials, and in views in which empiricism is contending with philosophy. There is much of reading, much of observation; a due deference to the opinion of others and an honest confidence in his own. The subject is encumbered by method, stifling the free play of thoughts by the logical armour which was intended as a help and a defence. In spite of these faults, however, the work is highly creditable to M. Gendrin and to the modern French school, which is striving to unite the wide survey of the patient German with the restless and searching empiricism of the English.

ART. V.

On the Anatomy of the Breast. By Sir ASTLEY P. COOPER, Bart., F.R.S., D.C.L., G.C.H., Serjeant-Surgeon to the Queen, &c. &c.—London, 1840. 4to, pp. 265. With a Volume of Folio Plates.

It was with the utmost gratification that we saw the announcement of another work from the pen of Sir Astley Cooper; and great as was our anticipation of its merits, we must confess, after a careful and candid examination, that it has surpassed our expectations—by the importance and interest of its matter, the extent and accuracy of its details, the fidelity and elegance of its illustrations, and masterly style of its general execution. We may be permitted thus, in general terms, to express our admiration of the work before us; but we are well aware that praise in the abstract is far from being the proper form in which this meed should be awarded to Sir Astley Cooper; and assuredly this is not the mode in which we are accustomed to commemorate the deserts of distinguished men. Sir Astley Cooper belongs to that small class of historical personages, the simple enumeration of whose doings is the only eulogy worthy of them;

“And those who paint them truest praise them most.”

Honestly to detail the motives which prompted his numerous investigations, the manner in which they were conducted, and the results to which they have led, is to claim and to obtain for Sir Astley Cooper the spontaneous admiration and willing homage of all who are qualified to judge of the achievements of scientific men.

But the medical profession is indebted to Sir Astley Cooper for much more than for the improvements he has effected in medical science. As a man and as a surgeon he is equally an honour to our time; and alike in studying his life as his works, we gather a stock of invaluable knowledge for the guidance of our conduct in our private and professional career.

And here it will be but justice to ourselves and readers—this being the first occasion since the commencement of our Journal that we have found an opportunity of calling attention to the subject—to take a brief survey of some of the principal improvements for which surgery and anatomy are indebted to Sir Astley Cooper. Many of the beneficial changes introduced by him were slow and gradual in their course, but to the eye of the future historian, as he regards them collectively, they will bear the character almost of a revolution.

Sir Astley Cooper was the first to ascertain with any degree of certainty the rate at which the ingesta are assimilated. So far back as 1792 he tied the thoracic duct of a dog, where it enters the vena innominata, and found that, under such circumstances, the receptaculum chyli burst three hours after a hearty meal; thus proving the rapidity of chylicification, the great degree of contractile power possessed by the coats of the duct, and also, by inference, the fact that very few of the absorbents can terminate in the veins. In his observations on the defects in hearing which take place from the obstruction of the Eustachian tube, he was the first surgeon who sought scientifically to account for the derangements in the function of that organ; and though the operation of puncturing the membrana tympani, which he proposed in these cases, cannot now be

considered infallible, it was still no less, at the time at which he wrote, a proof of his sagacity and of the soundness of his scientific principles. Spina bifida, a disease previously regarded as hopeless and intractable, he was the first to bring under successful medical treatment. By repeatedly puncturing the arachnoid, and removing the fluid which in this disease it incloses, he frequently caused it to take on a new and healthy action, and thus succeeded in suppressing the dropsical effusion, and in enabling the child to survive an affection under which it would have otherwise sunk. It was on physiology that his practice in this as well as in every other instance was based; and it is in the application of general physiological principles to the treatment of peculiar and apparently anomalous cases, it is in thus extending the rule of surgery to tracts which had previously bid defiance to its powers that we recognize the surgeon of genius.

Our limits will not allow us to do anything like justice to the vast improvement which Sir Astley Cooper has effected in our knowledge and in the treatment of hernia. Let the student, however, compare the confused and vague ideas which prevailed with respect to this disease in its different situations before his scalpel was devoted to its examination, with the correct and definite chart which writers on hernia are now enabled to sketch for their readers, and he will be able to form some judgment of the obligations this branch of surgical anatomy lies under to our author. Here, too, we do not find the practical improvements accidental or unconnected, but the result of industrious research and mature reflection. He was the first who showed that the abdominal muscles do not form the immediate internal parietes of the abdomen, but that there is a fascia everywhere present between them and the peritoneum. Scarpa and others had, it is true, spoken before of parts of this fascia, but in such a vague and indistinct manner that the information they afforded was anything but practically useful. Sir Astley was thus the first to demonstrate the proper outlets through which the herniæ pass; he could hence indicate exactly where it was that the division of the stricture must be performed, and he consequently diminished to a great extent the risk of wounding arteries.

No one before Sir A. Cooper is recorded to have tied the common carotid artery. After performing this operation, he was led to enquire into the extent to which, on the obstruction of main trunks, the circulation is capable of being continued by collateral branches. From experiments on the dog he found that the normal course of the blood admitted of such extensive modification, that even when the aorta was tied it could still be carried on. He was hence induced, in a case of aneurism of the common iliac, to tie the aorta in the human subject; the operation terminated unfavorably, but from extrinsic causes, so that no charge of rashness can, with a shadow of reason, be brought against him. There are numerous preparations in existence showing the spontaneous obliteration of the aorta, and there is certainly no reason why the operation in question should not succeed, where the general health of the patient is such as to admit of his bearing it. Sir Astley has tied all the principal arteries in the body, and has contributed much to the confidence with which the modern surgeon reckons on the establishment of collateral circulation when ligatures have been passed round main trunks.

Some idea of the value of Sir Astley's labours to improve the diagnosis and treatment of dislocations and fractures may be derived from the single fact that thirty-five years ago it was considered doubtful whether dislocation of the hip ever occurred: it was believed that if by chance it did take place its reduction was absolutely impossible. His is the earliest work on this subject in which the diagnostic marks of dislocations are systematically given. He was the first who insisted on the importance of constitutional means in reducing dislocations. Simplicity was the chief feature of the new treatment, of which the superior success soon became evident. Here we recognize, again, the scientific mind, of which it is the characteristic to produce the most striking and beautiful results by the fewest and simplest means. Formerly, in many cases of dislocation compounded with fracture, amputation was uniformly resorted to (for instance in that of the ankle-joint); but Sir Astley banished this practice in all but very bad cases, showing that nature could be trusted to repair the injury. Scientific observer as he has always been, and not a mere operator, he has never, with a rash and impertinent hand, officiously intermeddled with the natural processes of reproduction and repair. His system of practice affords a constant lesson to those who thrust themselves in the way of nature, and seek to figure by obstructing her remedial power. In compound fractures, Sir Astley never applied any other dressing than lint dipped in the blood, which he always left until it was loosened by suppuration. His apparatus of splinters, bandages, &c. was always of the simplest description. The extent to which his practice in this particular branch has been approved of and adopted may be judged of from the fact that his work on Dislocations and Fractures has passed through ten editions.

His Treatise on the Anatomy and Diseases of the Testis introduced light and order upon a subject where obscurity and uncertainty had previously prevailed. The perspicuity of his anatomical knowledge led to distinctness and decision in his surgical practice. Before his work was published, chronic abscesses, hematocele, and even hydrocele were not unfrequently removed from the testicle as malignant diseases; now such mistakes could only be committed by the wilfully ignorant.

It was the same spirit of scientific investigation which always suggested Sir Astley Cooper's labours, that prompted him to direct his attention to the nature and function of the thymus gland. He did not commence his studies in this department of anatomy by a theory; he patiently examined the structure of the part and was jealous, as he has ever been, of arriving at conclusions not strictly warranted by facts. The result of his researches was that the secretion of the thymus gland is highly albuminous and well fitted to renovate the venous blood. The general plan of anatomical and physiological enquiry adopted by him can be admirably studied in its application to this subject of minor practical importance, because the attention is not exclusively occupied by the magnitude of the questions at issue. His industry, his faithful adherence to nature, his minute yet comprehensive observation of phenomena, and the cautiousness of his advances towards a conclusion, are all admirably evidenced in the work on the thymus gland. His preparations, from which the statements in the book are derived, are not less than 250 in number. Indeed, had he not arrived at any valuable results the world

would still have been much benefited by his having devoted his attention to this subject, as the truly scientific manner in which he has treated it cannot but be highly instructive as an example to all anatomical enquirers in these days of hasty speculation and loose research.

Sir Astley Cooper was one of the first surgeons who proposed the important improvement of cutting into the membranous portion of the urethra, instead of puncturing the bladder, in cases of retention of urine. —He has given to the world an excellent description of encysted tumours, which originate, according to him, in the obstruction and enlargement of cutaneous follicles.—In treating exostoses, he was the first who proposed to cut off the periosteum and thus cause them to die. We doubt also whether any surgeon before him recommended the operation of sawing them off. But we must here close our list of his improvements in surgery, which, were it complete, would comprise a reference, more or less extensive, to the treatment of the greater part of the affections which it is the province of that art to remedy. We cannot omit, however, to devote a few words to the general features of his practice.

Sir Astley Cooper has received from nature a happy mixture of boldness and caution, and it is the spirit thence derived which has guided him in the study of all diseases, and led him to improve or modify the old treatment, where it has not prompted him to have recourse to new measures. His genius has not been manifested in his brilliant discoveries alone. It has moulded his whole practice; and he has always been as philosophical in the rationale of his treatment of slight cases (from which nothing striking or novel was to be elicited), and as careful in the details of its execution, as in the performance of those more heroic feats which have carried his fame to the ends of the earth. His general influence on the practice of surgery in this country has perhaps been most evident in the great share he has had in establishing pure induction as the only sure means of a just diagnosis, and in introducing a simplicity of treatment in accordance with the processes of nature. Before his time, operations were too often merely frightful alternatives or hazardous compromises; and they were not seldom considered rather as a resource of despair than as a means of remedy; he always made them follow, as it were, in the natural course of treatment; he gave them a scientific character; and he moreover succeeded, in a great degree, in divesting them of their terrors by performing them unostentatiously, simply, confidently, and cheerfully, and thereby inspiring the patient with hope of relief, where previously resignation under misfortune had too often been all that could be expected from the sufferer.

As a teacher, Sir Astley Cooper has never been excelled by any English surgeon. His discoveries were no hidden treasures; no sooner had he made them than he hastened, with liberal enthusiasm and a winning affability, to diffuse a knowledge of them amongst a large class of pupils. The whole present generation of English surgeons may, indeed, be said to have studied directly or indirectly in his school; and, assuredly, no master was ever more beloved and honoured, or sent more enthusiastic and grateful followers abroad into the world to propagate his doctrines. The manner of Sir Astley towards his patients has been universally admired; and his kindness and attention as an hospital surgeon have been properly appreciated: we know, moreover, that in his relation to his

private patients his character always showed to equal advantage, though this of course cannot be so well known to the public. He never spoke of a fee in his life. Where he received none he made it a rule to regard the case as one of distress, and was glad to perform an office of charity. "If we receive more than we expect," he has often said, "we return nothing; why, then, should we complain on receiving sometimes less than we deserve?"

The ardour and activity of this eminent man are qualities demanding our highest admiration. His love for science and zeal in her pursuits have never cooled from the time he first entered the profession. Even at the period of his life when his days were unceasingly occupied by the demands of his public and private practice, he would spend the greatest part of many of his nights in dissection; and it was then well known that he was ready at any hour to obey a summons from any quarter to attend a post-mortem examination. Even now, at an age when nature usually diminishes if she does not entirely destroy the power of the understanding to exercise its highest faculties, we find him still proceeding in the same course, working incessantly, and ever and anon giving to the world some elaborate work, displaying all the zeal and lively interest in the subject, which are commonly regarded as the exclusive attributes of youth. Instead of sinking under the shadow of his fame into luxurious repose, or forgetfulness of his past exertions, the honours with which he has been crowned only seem to stimulate him the more to pursue vigorously in old age the same path which he entered upon so ardently in his youth.

In the prosecution of his enquiries, Sir Astley Cooper never broached crude opinions, nor indulged in idle theories. He has preparations in his own house confirmatory of all the statements he has made in his anatomical works; and these constitute perhaps the most splendid anatomical museum possessed by any private individual in Europe. His improvements in surgery have always been based on the result of his anatomical enquiries; and with respect to the latter, not content with the observation of particular facts, as too many are, he has never given his discoveries to the world except in a complete and satisfactory form. In preparing his last work, he has restricted himself, he tells us, to describing from his own preparations. "My rule," he says, "has been always to publish that only which I could show to those who were sceptical and were yet desirous of arriving at the truth." It is this self-evident truthfulness both as to statements and inferences, conspicuous in every page, that makes so very valuable all the writings of Sir Astley Cooper; it is from this that they all derive a worth which time cannot destroy, and which will always entitle them to be ranked among the noblest monuments of the epoch at which they were produced.

We must now proceed to the immediate subject of this article, and give some account of Sir Astley's latest work, on the Anatomy of the Breast. This was undertaken, like almost all his other works, to pave the way for improvements in the practice of surgery. Rather more than ten years ago he gave to the world a volume on the non-malignant Diseases of the Breast. It contained, among other things, an admirable diagnosis of the affections springing from common inflammation in contradistinction to those of a malignant origin, which he had felt to be much wanted, in-

asmuch as hydatids, for instance, had been frequently mistaken for fungus hæmatodes; and other errors of a similar kind had been far from uncommon. In this work he also showed what were the particular tumours which might be removed without fear of their returning. He at first intended to follow up this work by a second part, which was to comprise the malignant diseases of the breast. He found, however, that the anatomy of the organ had not yet been sufficiently investigated, or, at any rate, that very indefinite and incorrect ideas were still prevalent with respect to its structure; and hence, in accordance with the rule which has guided him in all his scientific investigations, he set himself to demonstrate the precise anatomy of the breast, before entering upon the pathology and treatment of its diseases.

The first of the two volumes before us is divided into twenty-four chapters or sections (for the divisions have no particular title), and contains besides an appendix of comparative anatomy, and descriptions of the plates, which constitute exclusively the second volume. The first chapter contains general observations and definitions, and an account of the mode in which the author's investigations were pursued. Chapters ii. to xi., inclusive, comprise the organization of the various structures of the breast in the human female. Chapter xii. describes the effects of gestation and the development of the breast, and comprehends a chemical analysis of the fluid secretion. Chapters xiii. and xiv. are devoted to the function of lactation, and to the changes produced in the breast by the protraction or frequent repetition of this process, by age and other causes. Chapters xv. to xxv. treat of the several structures and of the organization of the mammary gland in the human male.

The "cunning of excelling nature," in providing, in the breasts, an apparatus for the supply of nourishment to the young animal, so soon as it shall be separated from its parent, is universally known and admired. "Soon after the commencement of utero-gestation, they begin to receive an additional quantity of blood to prepare for the new secretion, and thus by an admirable foresight, when the link which united the offspring to the mother is broken, a new and entirely different mode of nutrition is substituted for that which it had previously received." (p. 1.) In describing the adaptation of the structure of the mammæ to their intended purposes, the author divides the parts of which they are composed into internal and external. The former, which constitute the glandular or secretory organ, are concealed under the skin; the external part, called the mammella, nipple or teat, is formed to convey the secretion of the gland to the offspring. "The former would be of no use without the latter, for, however abundant the secretion of milk, the infant would be unable to receive it, if the nipple or mammella had not been added to the breast or mammæ."

"In the human female the breasts are placed upon the anterior and lateral parts of the chest, in what may be called the mammary region; and here the child when sucking is placed immediately under its mother's eye, as it receives the nourishment from her breast. Here it almost irresistably solicits her tender and regular attention, and the demonstrations of that affection which ought to be in future life reciprocal between the parent and the offspring." (p. 2.)

Here we have not only the physiological expression of the facts but also their moral interpretation, helping in some degree to explain the characteristic distinction between the lasting, mutual affection which na-

ture has ordained should unite the human mother to her offspring, and the merely instinctive attachment of the females of brute animals to their progeny, which ceases concomitantly with lactation. In proceeding to point out the different position of the mammary glands in different animals, the author directs our attention to the care displayed by nature in providing ready access to them for the young, and in protecting them from external injury during the motions of the animal. The size and number of the mammary glands, as well as the quantity of the secretion which they produce in different animals, bear no constant relation to the size or number of their offspring; the gland in the cow, for instance, is much larger in proportion than in the mare: then again the cow has four perfect glands and the guinea-pig two only, though the former animal has generally but one young, whilst the latter has several at a birth. It is very true that the guinea-pig, though she has frequent litters, and often nine or ten young at a time, is only furnished with two teats; but still it is not to be laid down as a general rule that the number of glands is not generally in proportion to the number of the offspring. The instance just quoted is rather, we think, to be regarded as an exception than as a law. In the bitch, cat, doe, sow, and many other animals, we observe that the number of teats is in proportion to the number of young, and must therefore conclude that this arrangement is the one most in accordance with the general design of nature. The author leaves the question open, merely remarking that the number of the glands does not always correspond to that of the offspring.

Notwithstanding these diversities, however, in the external character of the mammary glands, the organization of their secretory portion is very similar in all animals: "however complicated they may at first sight appear, their intimate internal structure really exhibits a remarkable degree of simplicity." (p. 4.)

The variation in the quantity of secretion from these glands in different animals is very remarkable; its abundance in the cow and goat, the author particularly alludes to, as showing a wise provision of nature not only for the support of their own young but for supplying man with the most wholesome of food.

The sources from which the mammæ derive their supply of blood vary according to the position of these glands in different animals; and even in the human subject, the source and course of the arteries are by no means uniform; but diversities of this kind do not interfere with the quality or quantity of the secretion. In this respect, it is observed, the glands in question differ from others, for example from the testis, to the performance of the functions of which the distant origin of the spermatic artery and the tortuosity of its course appear to be essential. The mammary veins constantly follow the varieties in the origin and course of the arteries. The nerves of the mammæ arise in all animals from the spinal marrow and sympathetic system, and from the cervical, dorsal, or lumbar portions, according to the position of the glands. The author concludes his first chapter by detailing the best method of exploring the various tissues of the breast, and of demonstrating and preserving each particular structure. For a clear and elaborate account of these difficult and delicate manipulations we must refer such of our readers as require instruction on this branch of the subject to the book itself, since the

description does not admit of being curtailed, and is too long to be quoted in full.

The second chapter commences with an account of the proper anatomical position of the breasts, including a description of the region of the thorax on which they are placed, and a notice of the muscles on which they immediately rest. They are rather concave posteriorly in accordance with the convex surface of the thorax. The arched form of the ribs adds to their projection and facilitates the access of the child to the nipple. As external parts of the breasts the author enumerates the nipple, areola, tubercles, and mammary glands. The internal or the true secretory portion is composed of "an assemblage of small secreting bodies or granules, from which proceed the lactiferous tubes to the nipple." These granules and tubes are all bound together by a firm, fibrous, inelastic membrane, which, though on the one hand it may be described as connecting the various internal structures, may also be said, on the other hand, to insulate the different portions so as to make, on the whole, a conglomerate gland. A considerable quantity of cellular tissue also enters into the composition of the breasts, containing in different individuals more or less fat, to which the human mammæ are indebted for their smooth rotundity, and which also perhaps effects some more important object. The author indicates the manner in which the mammæ are attached to the thorax by stating that they are "*slung* upon the chest," and are so supported by the fibrous tissue already spoken of, that the nipples are projected forwards and outwards. He here complains that modern artists have not in their delineation of the human figure paid sufficient attention to the disposition of these parts, but have represented the nipple as pointing directly forwards. The ancient sculptors, he observes, modelled from the living subject, and therefore did not fall into this mistake. We cannot refrain from quoting the author's beautiful description of the object gained by the eversion of the nipple.

"This natural obliquity of the mammella or nipple forwards and outwards with a slight turn of the nipple upwards is one of the most beautiful provisions in nature both for the mother and the child. To the mother, because the child rests upon her arm and lap in the most convenient position for sucking, for if the nipple and breast had projected directly forwards the child must have been supported before her in the mother's hands in a most inconvenient and fatiguing position, instead of its reclining upon her side and arm. But it is wisely provided by nature that when the child reposes upon its mother's arm, it has its mouth directly applied to the nipple which is turned outwards to receive it, whilst the lower part of the breast forms a cushion upon which the cheek of the infant tranquilly reposes. Thus it is, as we have always to admire the simplicity, the beauty, and the utility of those deviations of form in the construction of the body, which the imagination of man would lead him à priori to believe most symmetrical, natural, and convenient." (p. 12.)

The position of the breasts prior to impregnation is much altered by frequent lactation, by the debilitating effects of a hot climate, and by exposure to a high degree of artificial warmth; but as relaxation invariably accompanies such changes, the infant is not prevented from sucking in the usual manner. Buffon, in his *Histoire Naturelle*, states that a line drawn from one nipple to the other, before any change has taken place in the natural position of the mammæ, would form the base of an equilateral triangle, of which the lines meet in the centre of the pit above the

sternum. Sir Astley, however, informs us that in the *Venus de Medicis* the distance from one nipple to the other is $7\frac{1}{2}$ inches, whilst the pit between the clavicles is only $6\frac{1}{2}$ inches from each nipple, so that in this beau-ideal of female beauty the base of the triangle is longer than its sides. It is an important fact that the glandular portion of the breast frequently projects into the surrounding fibrous and cellular tissues, so as to destroy the regular form of its disc: this should be borne in mind in all surgical operations on the part and whilst removing it for anatomical investigation; or else, as our author observes, portions of the glandular structure will be almost certain to be left behind, leading, probably, in the former instance to a return of the disease for which the operation was undertaken, and rendering, in the latter, the removed organ quite unfit for injection and preservation.

We perfectly agree with the author that the human female is provided with two breasts, not for the purpose of enabling her to nourish twins, as is generally supposed, but that she may be capable of affording the necessary supply of milk to her offspring, should one of the *mammæ* be destroyed either by accident or disease. The comparatively rare occurrence of twin-births is in favour of this opinion, and still more the fact that women with supernumerary *mammæ* or nipples have not been found to be more prolific than is usually the case. Cases in which more than two breasts have existed are mentioned as occasionally occurring; but the author confines himself here to quoting one example of this anomaly (a woman with four breasts,) which he witnessed through the kindness of Dr. Robert Lee, in a letter from whom its history is given. The second chapter concludes with an account of the physiological and pathological causes of the varieties observed in the thickness of different portions of the *mammæ*. The axillary and abdominal edges are naturally more compact and dense than the sternal and clavicular portions.

"In this way the lower part of the breasts forms the cushion upon which the cheek of the child reposes as it seeks its mother's bosom; and as to the causes by which the greater thickness and projection are produced, I shall particularly point them out in speaking of the gland, but I may here observe that upon this structure depends the projection of the nipple, the ready access which the child has to it, and thus two important objects are accomplished." (p. 19.)

As the consistence of the substance of the *mammæ* is very various at different periods of life, being equally compact in the virgin, comparatively knotty and irregular during and sometime after lactation, and moreover being periodically affected by menstruation, it behoves the surgeon to render himself perfectly familiar with these natural changes, or he will be liable to confound them with morbid phenomena. He ought also to have an exact knowledge of the changes which the *mamma* undergoes from age. So soon as the period of menstruation ceases, an alteration, as might be expected, takes place in this organ, an apparatus for the secretion of the milk being now no longer required. Although the mammary glands themselves waste rapidly away at this time of life, their ducts still remain open for a considerable period, during which they are found loaded with a mucous secretion which may be squeezed from the nipple. Sir Astley Cooper sent some of this secretion to Dr. Prout, who found it to consist of phosphate and carbonate of lime. The distension of the ducts with this fluid is rather to be attributed to the diffi-

culty with which it escapes through the contracted orifices of the nipple than to its being secreted in great abundance: during its retention the more watery parts evaporate, and thus the residue is inspissated. The milk-cellules of the breast in old age do not admit of being filled with injection, and the ducts even can then be only imperfectly penetrated. The most singular, though an almost invariable, change which age induces in this structure is the tendency of its arteries to ossify and to become impervious from the quantity of earthy matter deposited within them. The veins of the breast are much diminished by age, which, however, has no appreciable effect upon its nerves. As life declines the nipple becomes long, wrinkled, and relaxed, and in very old age it contracts and resembles only a warty excrescence. "It appears, then, that the effect of age is to absorb the glandular structure, to load the ducts with mucus, to obliterate the milk-cells, to ossify the arteries, to wrinkle and elongate the nipple, and at length in a great measure to absorb it." These changes are well delineated in plate viii. figs. 3, 8, and 9.

The third chapter or section of the work is confined to a description "of the structure of the constituent parts of the breast" in the female; but it is our intention while treating of these to compare them with the corresponding structures in the mammary glands of the male described in sections xv. and xvi. A juxta-position of these organs as they exist in the two sexes will be found to elucidate each other in a physiological point of view. In describing the particular breasts, however, we cannot improve upon the plan of the author, and shall always, like him, proceed from without inwards, beginning of course with the nipple.

The mammary gland of the male is but a miniature picture of that of women. Its size varies much in different individuals, and it appears, in the author's opinion, to be most developed in those who have an effeminate aspect. The largest he had ever an opportunity of observing were in a man whose testes were imperfectly developed. This coincidence, to call it nothing more, appeared to him so extraordinary that he has given a delineation of both the testes and mammae of this individual in plate ii.

Physiologists have hitherto given but little satisfactory information with respect to the functional purposes of the mammary glands in the male. Whilst some authors seem to regard them as merely ornamental appendages to the frame, others go so far as to assert they are designed to provide nourishment for the young, as if nature had intended that the father should assist the mother in this important duty. In a letter to Sir A. Cooper from his nephew, Dr. Young, of Barbadoes, the latter says, "I have seen some cases of enlarged and pendulous mammae in the negro bearing many of the external characters of those of the negress who had never borne children." Sir Astley's own opinion on this subject is as follows:

"It is true that from the mammary gland a very small quantity of fluid may be sometimes pressed through the nipple, and the continual application of the infant's lips might slightly increase the quantity of the secretion, and the child might be gratified by sucking the nipple as it is by sucking the finger, but the quantity of secretion is too small for the purpose of affording nutrition to the infant. It appears to me that its use is to form an organ of sympathy with the other parts of the sexual system, which are influenced and excited by mental impressions and by the direct irritation of the nipple. For this purpose the

organ possesses an erectile tissue of arteries and veins, and a high sensibility from several nerves which are devoted to the supply of the nipple and mammary gland." (p. 161.)

We believe, however, though our author does not go into the subject, that under certain circumstances the gland in the male may be made to perform, to a certain extent, the office of the female breast. Humboldt mentions a man in the village of Avena, who, on the death of his wife, suckled her infant for five months; and other similar instances are extant, which certainly appear to authorize the belief that some degree of nourishment may, under certain circumstances, be derived from the male breast. This may not be the specific object of the organ in the male, but it would still be unphilosophical to conclude that it is impossible for the male breast to become, in some degree, a substitute for the breast of the mother. It seems to be also authenticated that girls before puberty, unimpregnated women, and even females advanced in age are capable of furnishing support to a child, if their breasts have been frequently stimulated by the application of its lips in the attempt to suck. This proves that an increased flow of blood, induced from other causes than sympathy with the uterus, is able to produce a nutritious secretion. Nor is such a result at all anomalous, for we may generally expect where there is a determination of blood to any secretory gland, that there will be an increase of its secretion, not so perfect, perhaps, as that proceeding from the appropriate stimulus, but still of a very similar character. Of the great sympathy and connexion between the mammary glands and the other parts of the sexual system in the male we are quite convinced, having met with several cases in which it was manifested, and with one in particular, that of a friend, who has seriously avowed to us that the slightest irritation of his nipple invariably excited in him sexual desire.

On considering the whole organization of the mammary glands in the male as they are elaborately described, especially with respect to their absorbent system, by our author, we cannot but think that they have other functions than those which have been hitherto noticed. With respect to their larger size, however, in many individuals, this is generally owing more to an accumulation of fat than to the magnitude of the gland itself. The author has seen them very large in an old negro, and seems inclined to believe that they increase in proportion to the decline of virility in man, which, if it be really the case, is the more remarkable, as in the female they begin to shrink and diminish from the period when menstruation ceases.

In considering the particular structures which constitute the male and female breasts, we find a wonderful similarity to exist between them in the two sexes. We now proceed to notice the different parts.

The nipple or mamilla. The nipple of the male resembles so strongly that of the female in position, form, and physical condition generally, that in describing the one, under these heads, we should also be giving an account of the other; but in respect to function the mamilla of the female is so much the more important that we shall devote our attention principally to it. The female nipple is most carefully described by the author with the intention of showing that it is situated in the best possible manner for conveying the milk from the breast of the mother into the mouth of the child.

"It springs from the convex surface of the breast, and projects forwards and outwards, the point being also generally directed slightly upwards.... It is not placed in the centre of the breast, but is situated nearer the abdominal margin of the gland than the clavicular edge.... It is placed below a line drawn across the middle of the gland, from the sternum to the axilla, and on the outer side of a vertical line drawn from the middle of the clavicle to the abdomen.... In the female infant it is placed upon the edge of the fourth rib. At puberty it descends to between the fourth and fifth ribs, but, after several lactations, it often descends as low as the seventh rib." (p. 22, 23.)

The form of the female nipple is that of a cone, rather rounded at its extremity in the virgin, but becoming flattened during lactation, in consequence of the unfolding of the cleft which had hitherto concealed the terminations of the lactiferous tubes. This change of form renders the adhesion of the child's lips much more firm and complete. The male nipple remains rounded and but slightly elevated through every period of life.

The colour of the female nipple depends to a great extent on the condition of the uterus at different periods. "In infancy it is of a pinkish red; at puberty of a more florid red; in young women of a slight brownish red; but in pregnancy it becomes of a very dark colour. In old age it becomes again more of the hue of the surrounding skin, although sometimes it remains very dark." The author does not notice any analogous changes in the male nipple corresponding to the various conditions of the organs of generation in the successive stages of life.

The nipple, both in the female and male, is composed of the following structures: common integuments, fascia of the ducts, ducts, arteries, veins, absorbents, nerves, with a general investing cellular membrane.

The cuticle of the nipple in both sexes, though resembling generally that of the rest of the body, may perhaps be said at its apex to offer a greater resistance to separation from the subjacent structure than usual; but this results not only from the irregularity of the surface of the nipple, but also from the connexion of the cuticle with the mucous membrane of the lactiferous tubes, which is rendered evident when it is removed by maceration or decomposition, by one or other of which processes the tubes themselves can be best demonstrated. Our author remarks that the tenuity of the cuticle in some females occasionally leads to such great inconvenience during lactation, that the application of astringents or mechanical protection is required. We have known serious affections to arise from a similar delicacy of cuticle in the male, leading, in some cases, to a protracted irritable condition of the mammary gland, and in others to the formation of abscess, though the exciting cause had been sometimes nothing more serious than the mere friction of a brace.

The rete mucosum of the human nipple presents no peculiarities. Into the organization of the cutis of the nipple our author enters at too great a length for us to be able to follow him; but we shall endeavour to lay before our readers a succinct account of his views with respect to its functions. The cutis of the circumference of the nipple differs considerably from that of its truncated apex: the former is remarkable for its numerous papillæ, rendering it highly sentient, whilst the latter is pierced by the orifices of the lactiferous tubes: this diversity is of course most obvious during the time of lactation. The direction of the papillæ just mentioned is from the base towards the apex of the nipple, so that

they are pushed back as the mamilla enters the mouth of the infant, and thus produce the excitement necessary for the secretion of milk. Their foliated form and vascularity are beautifully delineated in plate ii. figs. 12, 13, 14, 15.

In treating of the vascularity of the nipple, Sir Astley has described the termination of the arteries in the veins as it takes place in each papilla; and he insists particularly (in a note, p. 28,) that the anastomosis of arteries with veins is direct, and that the communication between them is not effected by any intermediate vessels, as is now generally maintained. The erection of the nipple, which is so evident during the process of suckling, has been supposed to arise from the passage of blood into a structure similar to the corpus cavernosum penis; but the author attributes its distension simply to a determination of blood into the capillaries of the nipple and papillæ.

The openings of the lactiferous tubes, which, except during lactation, are inclosed in the cleft dividing the apex of the nipple, are extremely minute, both in the human female and in other animals, so as to prevent the escape of the milk, to aid in retaining which there is no transverse wrinkling of the tubes, as Haller states: "but as any one may at once see, by cutting them open near their terminations, they are wrinkled longitudinally, to allow of a greater dilatation of the tube behind the contracted orifice."

The nipple is attached to the mammary gland by means of the lactiferous tubes, the suspensory fibrous tissue, and cellular membrane, which together prevent its too great elongation and relaxation, and preclude the possibility of its being separated from the breast by external violence, whilst at the same time they are sufficiently flexible to admit of its very various changes of position, to suit the motions of the child whilst suckling. The delineation of the arteries, veins, nerves, and absorbents of the nipple (plate ii. fig. 14, 15,) display at once the minuteness and accuracy of the author's anatomical investigations.

There are four principal arteries of the nipple, derived from the axillary and internal mammary arteries; both sets pass to the basis of the nipple, where they freely inosculate, and send parallel branches to the apex and papillæ, whilst others pass backwards to the lactiferous tubes and communicate in the centre of the gland with branches from the intercostals. The veins of the nipple, at their origin, form bundles or bushes, proceed in larger trunks to the venous circle of the areola, and ultimately terminate in the axillary, internal mammary, and intercostal veins.

There are two sets of nerves, a posterior or axillary, and an anterior or sternal. The former, derived principally from the fourth and fifth dorsal or intercostal nerves, proceed to the nipple, supported on branches of arteries; the latter consist principally of the reflected branch of the fourth dorsal.

With respect to the absorbents of the nipple, which we ourselves, in common we believe with many other anatomists, have never seen, we cannot do better than quote Sir Astley's own description:

"The absorbents of the nipple, which are very large and numerous, proceed from its basis along the surface of the gland to the axillary fascia, where they pass through its cribriform absorbent opening or openings to terminate in the

axillary absorbent glands immediately behind the fascial aperture, and a little above it, close to the edge of the pectoralis major. But the absorbents on the sternal side of the nipple take two courses into the anterior mediastinum, viz. between the cartilages of the second and third ribs, and between the fourth and fifth." (p. 34.)

The Areola. The fourth section or chapter is devoted to the Areola. It is nearly on a level with the common integuments of the breast. The nipple springs out from its centre before lactation, but below the centre in lactating women. The diameter of the areola is only half an inch in the infant, and an inch at puberty; but during lactation it frequently extends beyond two inches; before which period both it and the mammary gland are in what may be termed a rudimentary state. Its colour varies as life advances, corresponding in its changes to those in the tint of the nipple already described. The change of colour in the areola during pregnancy the author dwells upon as diagnostic, and as hence important both to the medical man and to the female herself, but he does not consider it peculiar to that state, and therefore not an invariable criterion, having seen it exist under certain exciting conditions of the uterus. Its cuticle, like that of the nipple, is delicately attenuated, that it may not interfere with the sensitiveness of the cuticular papillæ: in some cases this tenuity is so extreme as to lead, as in the nipple, to inconvenience during suckling. The rete mucosum of the areola is subject to various changes of hue according to the different states of the uterus. The immediate cause of these changes the author seems to attribute to irregularity in its supplies of blood. Thus, during pregnancy, a greater quantity of blood being sent to the breast, the rete mucosum assumes its deepest shade, while in the decline of life it regains its general complexion. Somewhat analogous are the effects of a hot climate, which we constantly see affecting the complexion. We do not quite agree with the author that the reticulated character of the rete mucosum is derived from the form of the inner side of the cuticle, but are rather disposed to believe that it is attributable to the existence of a congeries of veins anastomosing at right angles. A similar venous network is found generally under the cuticle, and is very evident in the negro: and it is owing to this arrangement probably that the skin is able to eliminate such large quantities of carbon, and thus to assist in the function of the lungs. The areolar cutis is plentifully supplied with papillæ, which are rendered very evident by the separation of the cuticle and rete mucosum. They are stated to be smaller than those of the nipple, towards the base of which, however, they increase in size. They are highly vascular and sensitive, and serve to increase the adhesion of the infant's lips in suckling: they also add to the sympathy of the areola with the mammary gland. The areola is to be regarded as little else than an extension of the nipple, with which its organization is nearly identical.

The tubercles of the areola have never, as far as we have been able to ascertain, been properly described by any previous writer on the breast. Sir Astley has succeeded even in injecting them, and demonstrating their glandular structure: they are beautifully delineated in his third plate. Their orifices, placed at the circumference of the areola, vary in number. They are described as highly vascular and lobulated, and as serving to lubricate, by their secretion, the surface of the areola, to add firmness to the adhesion of the child's lips, and to give greater sensibility

to the areola. We cannot well understand why the author should attribute sensibility to this secretory apparatus; we think that a second definition which he gives (at p. 45) of their functions is more correct, where he says that they are merely mucous glands formed to lubricate and defend by their secretion the nipple and areola. They increase considerably in size during lactation. Morgagni, Meckel, and others, have thought that their orifices communicated with the lactiferous tubes, and that milk could be squeezed out through them: the fallacy of this opinion Sir Astley has clearly proved. The skin around the areola, and indeed of the whole breast, is particularly smooth, firm, and white, owing, Sir Astley says, to the intermixture of the glistening fibres of the fascia with the cutis. On minute examination, a number of small glands may be discovered on the skin of the breast, which serve to moisten its surface: their orifices often contain fine hairs: these glands are beautifully delineated. (pl. iii. fig. 5.)

The structures of the male areola are precisely the same as those of the female, and in infancy its organization in the two sexes appears identical. It undergoes a change at puberty, both in the male and female, and now its higher importance in the latter becomes evident from its more rapid development: in the male after puberty its increase in size is only proportional to the general growth of the body. With respect to the origin and course of its vessels and nerves, the male nipple does not differ from that of the female. On the function of its absorbents we shall defer our observations till we have described the internal structures of the breast.

In the fifth section the description of the internal structures of the breast is entered upon: viz. the fascia mammæ, the lactiferous tubes, the lacteal glandules, the milk-cells, the organization of arteries, veins, absorbents, and nerves, and finally the fat and cellular tissue.

The Fascia of the Breast. To Sir Astley Cooper belongs the merit of having first pointed out the striking part which the fascia mammæ performs in the economy of the breast. He describes it as consisting of two layers, which, at the sternum, adhere to the ligamentous substance covering that bone. Thence they proceed outwards, separate from each other, and inclose the breast between them. At the axillary margin they again unite, and, becoming fixed to the fascia of the axilla, the breast is "slung" in a fibrous covering. The anterior or superficial layer is firmly united to the integuments of the breast by numerous processes termed by our author *ligamenta suspensoria*, between which lobes of fat are deposited, giving rotundity to the organ, and serving to defend it from external injury. From the posterior surface of this anterior layer numerous processes pass backwards into the substance of the mammary gland, intersecting and connecting its various portions. A process of this fascia also proceeds to the nipple, surrounding and inclosing the ducts which are contained within it. The posterior layer of the fascia mammæ also sends fibres into the substance of the breast, whilst others pass backwards, and are united to the aponeurosis of the pectoralis major. After this excellent description of the anatomy of the fascia mammæ, its important uses will suggest themselves at once. Its arrangement is admirably demonstrated in fig. 1, 2, 3 of pl. iv.

Excretory Ducts. In treating of the secretory structures, we shall deviate somewhat from the arrangement of the author, and commence

with the excretory ducts, the orifices of from seven to twenty-two of which are found in the cleft of the nipple. These orifices are not uniform in size, but are without exception narrower than any other portion of the tube, as if for the purpose of preventing the escape of milk. On tracing the ducts backwards, they will be found to dilate considerably as they approach the areola, where they open into large branches, formed by the union of several lactiferous tubes from the glands; thus we find that there is a reservoir for the milk between the secretory or internal, and the excretory or external portions of the breast. The mammary, lactiferous or milk tubes arise in small and numerous branches from the glandules of the lobes: if an injection be thrown into a tube formed by the united branches of one lobe it will enter that lobe only, and will pass into no other. In pl. vi. Sir Astley has exhibited drawings of numerous lobes of the breast, injected with various colouring matters, and without any blending of the different tints. The interior of all the excretory ducts of the human breast is lined by a highly vascular mucous membrane.

The mammary Gland. The gland of the breast is constituted by a number of glandules, connected by processes of the above-mentioned fascia mammæ. Each lobe may be unravelled into lobules, and each lobule again into glandules; and the whole may thus be made to present the appearance of a bunch of currants hanging from its stalk. The size of the respective parts depends upon the period of life, and on the condition of the mamma itself in reference to the state of the uterus. In the unmarried female, after puberty, the several parts may be demonstrated, but they are small; they enlarge however somewhat during menstruation. During lactation they are large, and can be easily demonstrated. As life advances the glands gradually diminish, but the tubes do not alter much. One of the great uses of the attachment of the glands to the skin by the "ligamenta suspensoria," is to render the breast more prominent, and the nipple consequently easier of access to the lips of the infant. The numerous folds which the fascia presents for the reception of the glandules also afford an immense increase of surface for secretion, without increasing inordinately the size of the breast. The disposition of the fascia with regard to the glandules is rendered very obvious in pl. vii. fig. 2.

The glandular structure of the axillary and abdominal margins is much thicker than that of the sternal and clavicular margins, owing probably to its being folded in the former on itself, so as to form a cushion for the child's head, where alone this can contribute by its pressure to aid during suckling in the expulsion of the milk. At the lower and outer part of the mamma there is a greater number of granules and of excretory ducts than in any other situation, and the lactiferous tubes are here placed one upon the other. The posterior surface of the mammary gland is not so irregular as the anterior, from its not being disposed in folds or plates in the same manner by the fascia. The circumference of the breast is not an exact circle from some parts projecting further than others into the subcutaneous tissues.

The milk cells are found in the interior of the granules, and differ in number according to the size of the latter. They are lined by a membrane which Sir Astley seems inclined to denominate serous, though he acknowledges that its vascularity renders it more similar to the mucous

membranes, to which class we think there can be no doubt that it belongs, judging both from analogy, from its anatomical character, and from the circumstance that were it serous the first inflammatory attack would at once obliterate the cell and destroy its function. The arteries which supply the cells with blood secrete also the milk: their terminations are extremely minute; and although, at the period of lactation, the trunks themselves increase considerably in size, no corresponding change occurs in the capillaries. The veins convey the reflux unexpended blood into the general circulation. The absorbents connected with the milk-cells are very numerous, and perform the double function "of absorbing the more watery particles of the milk so as to render it more nutrient than under its first secretion; and are also employed under great accumulations, in the absence of the child, when they relieve and unload the vessels." There are, however, cases where, notwithstanding the operation of the absorbents, recourse must be had to the lancet for the relief of accumulation, as the author has shown in his work on the Non-malignant Diseases of the Breast. The nerves of the secretory structure are extremely minute, and take the course of the arteries on which they are supported. Sir Astley concludes this section with so happy a description of the secretion and course of the milk that we should not be doing justice either to him or to our readers were we not to quote it:

"From this description of the structure of the parts the function of the organ is easily explained. The milk is secreted by the arteries into the milk cells, from which it is forced forward by two causes; first by the elasticity of the cells, which is proved to exist in many animals by injecting the cells minutely with quicksilver, and then if one of the ducts be pricked with a needle all the lactiferous tubes become instantly emptied, but in women this occurs less than in other animals. Secondly, by the vis a tergo of the continued secretion, one portion of milk forcing forward the other, in a minor degree when the child is not applied, but when the draught occurs a sudden rush of blood increases the secretion, and rapidly hurries the blood forwards to the nipple, to supply the wants of the infant. The milk is conveyed from the cells which are found in every point of the gland into the *mammary ducts*, which form radii converging all of them towards the areola; and, as these vessels are increasing in their diameters, little opposition is made to the progress of the milk as it courses from the smaller to the larger tubes. When the milk is thus brought by the mammary tubes to the areola, it is received into the *recevoirs*, and in these, and in the mammary ducts, it is retained until the infant begins to suck; and here it will be seen that the form of the tubes is reversed, for the mammary tubes are constantly increasing towards the nipple; but the *recevoirs* enlarge towards the gland, and become smaller towards the nipple, which gives them a power of retention until the discharge of the milk is required. The milk next passes into the *mammillary ducts* or straight tubes of the nipple. These, like the *recevoirs*, are conical, with the apex of the cone turned towards the point of the nipple; and as their orifices at the nipple are very small and unyielding, the milk is also again retained until the act of sucking removes it; and when the draught occurs abundance of milk is hurried forwards to the *recevoirs* and *mammillary tubes*. The infant's lips and gums, and the suction produced by the exhaustion of the air in the mouth, not only mechanically empty the *mammillary tubes* and overcome the resistance of their contracted orifices, but also, by rendering them finer capillary tubes, assist, upon hydraulic principles, in giving rapidity to the passage of the milk." (p. 69.)

The fat of the Breast. Nature, says our author, has abundantly supplied this organ with adipose tissue, with the object—firstly, of preserving its general contour; secondly, of regulating its temperature under

exposure; thirdly, of allowing it to float in an oily fluid, and thus of enabling it to elude or diminish the shock of external violence. This cushion of fat is placed beneath the skin, and is chiefly deposited in large lobes between the ligamenta suspensoria and the anterior folds of the glandular substance: it is not, however, secreted by these textures, but by a vascular membrane of the cellular adipose kind which lines them, and is not a simple investment, but gives off numerous processes, which by meeting and uniting form the little cellules that secrete and contain the smaller lobes of fat. Fat is similarly deposited posteriorly between the fascial loops connecting the breast with the aponeurosis of the pectoralis major muscle. The importance of this structure is sufficiently evident from various circumstances; for instance, from the impunity with which women of the lower orders receive severe blows in their pugilistic contests. From such encounters, says the author, I have seldom known them to suffer immediately any serious consequences; but he afterwards observes that "at distant periods women apply with tumours in their breasts, which they frequently impute to blows." When the period of lactation ceases, an increased quantity of fat is generally deposited, in order to supply the deficiency occasioned by the absorption of the glandular matter; but in very old age this also is absorbed, and the chest is then flattened like that of the male.

In the male subject but little fat is found connected with the mammary gland till an advanced period of life, when it is deposited not only in the folds of the suspensory ligament, anteriorly and posteriorly, but even in the interstices of the gland itself, and sometimes so abundantly as to render the breasts of aged men similar in appearance to those of females.

Arteries. It seems to be a matter of but little importance from what sources the glandules of the breast receive their supply of blood, since the distribution of the mammary arteries not only varies in accordance with the different positions of the gland in different animals, but is by no means constant in individuals of the same class. In the human subject the arterial blood is most commonly derived from the axillary and internal mammary arteries, the former usually sending off two posterior branches, the thoracica longa and the thoracica suprema, while the anterior or sternal arteries of the breast are generally three, viz.—the second, third, and fourth perforating branches of the internal mammary. The true external or posterior mammary artery is sometimes a branch of the thoracica longa, sometimes of the axillary artery itself. In addition to these vessels, the gland receives upon its costal surface one and sometimes two deep-seated branches from the mammary intercostals, which passing into the concave surface of the breast, freely supply its glandular structure. The branches of all these arteries, whether they are distributed to the external or internal structures of the breast, anastomose freely with each other. The arteries upon the cutaneous surface of the breast are lodged in the festoons formed by the ligamenta suspensoria; proceeding thence to the nipple, they send off parallel branches from its base to its apex, which again are minutely subdivided to supply the papillæ and ducts; they give off also some descending branches to anastomose with the arteries entering into the back of the gland.

Veins. "The branches of veins arising from the nipple pass from its papillæ in parallel branches to its base, and then form radii to an ellipse

behind the areola at its margin. Their beautiful and minute division into branches upon the papillæ is seen in pl. x. figs. 3 and 4; and these, with corresponding divisions of the arteries, constitute the erectile tissues." From this ellipsis four principal branches proceed, and are distributed on the fore part of the breast in a freely communicating network. The chief cutaneous branches are more numerous than the corresponding branches of the arteries, and pursue a distinct course: the deeper-seated veins, however, and those of the interior of the gland, correspond in their course to the arteries of their respective regions. The mammary veins terminate variously in the axillary, cephalic, internal mammary and fourth mammary intercostal veins: a plexus also passes over the clavicle, and empties itself into the external jugular and subclavian veins. Such are their principal terminations, but they communicate also with the branches of the internal mammary veins, and "in a putrid body they colour the skin, and exhibit a beautiful and extended plexus, passing in all directions from the circumference of the breast." During lactation both sets of these vessels are serpentine in their course, as are also those of other parts of the body which are liable to changes of size, for instance, the uterus. Under the influence of certain malignant diseases the mammary veins become excessively distended with blood, and are the source of much pain to the patient and embarrassment to the functions of the chest. For the relief of this accumulation, the author has long been in the habit of opening these vessels with a double-edged lancet-shaped needle; and he thus, without exciting apprehension, can extract in three or four minutes from four to six ounces of blood, avoiding by this means the long-continued exposure of bleeding by leeches, and the trouble of continued fomentation afterwards.

Nerves. The nerves of the mamma are derived from the fourth, fifth, and sixth intercostals, and sometimes also from the third. Sir Astley describes those branches which enter it at its axillary margin as the posterior nerves, and those which penetrate the intercostal spaces between the cartilages of the ribs near the sternum, as the reflex branches. Their ultimate distribution, he says, can only be demonstrated by injecting the arteries upon which the nervous filaments are found lying as if for support. All the intercostal nerves derive filaments from the ganglia of the sympathetic; and to this circumstance the author attributes the relation which exists between the functional conditions of the mamma and uterus, in opposition to the opinion that the sympathy between the organs depends upon the anastomosis of the epigastric and internal mammary arteries. We quite agree with him here; for it is reasonable to suppose that during uterine gestation, when the uterine arteries receive an additional supply of blood for the development of the embryo, it is the internal iliac, and not the external, which is enlarged; as indeed is shown by the fact that an anæmial condition of the lower extremities is a frequent concomitant of pregnancy.

Absorbents. The absorbents are very numerous in the female breast, and are most easily demonstrated during lactation. They are divided into a superficial and deep-seated or cutaneous and glandular set: the former are situated immediately under the skin; the latter arise from the mucous membrane of the milk-cells and lactiferous tubes; and ramify, in the course of the veins, between the glandules and lobules of the breast. The superficial absorbents arise round the nipple; course

upwards towards the axilla, lying first on the superficial fascia of the chest, which they afterwards pierce, and are then situated on the aponeurosis of the pectoral muscle. They continue this course upon the thorax as far as the third intercostal space; here they penetrate the fascia of the axilla, and forming a considerable plexus of vessels enter the axillary absorbent glands. These plexuses communicate with glands situated in the third intercostal space. They pass upwards to the second rib, surround the axillary vein, and, on reaching the first rib, again enter the absorbent glands. From the uppermost of these glands one large efferential trunk is formed, which runs up on the inner side of the axillary vein, and piercing the deep fascia of the neck between the clavicle and first rib, enters the vena innominata at the angle formed by the terminations of the internal jugular and subclavian veins.

All the superficial absorbents of the breast do not however take this course under the clavicle, for some may be traced running behind the axillary vein, artery, and nerves, and joining the absorbents of the arm, which then ramify through several glands, and again form plexuses which wind round the axillary nerves and vessels, and getting anterior to them above the clavicle, descend and terminate in the venæ innominatæ. If, therefore, says the author, the absorbent glands in the axilla become obstructed by disease of the breast, there are other vessels ready to perform their office, and should these be affected, the absorbents behind the scapula are capable of acting in their stead.

The absorbents on the inner or sternal side of the breast form themselves into an upper and lower plexus; the former, penetrating the intercostal space between the cartilages of the second and third ribs, enter the anterior mediastinum and pass into glands situated in the course of the internal mammary vessels, whilst the lower plexus enters the mediastinum, or between the cartilages of the fourth and fifth ribs, and unite with the others. These absorbents are described as uniting, on the right side, with some from the liver. On both sides they terminate in the venæ innominatæ. In pl. xi. figs. 1, 2, the course of the superficial absorbents of the mammæ is beautifully displayed.

No accurate description like the above of the superficial absorbents of the breast has been given by any preceding writer on the subject; for no anatomist has hitherto injected and dissected them so carefully as Sir Astley Cooper. Nor are these details of importance to the mere anatomist alone; they are fraught with the deepest physiological and pathological interest; but we must defer these considerations until we have described, after our author, the deep-seated absorbents.

The deep-seated absorbents are very numerous, as may be seen on referring to pl. xi. fig. 3. Arising from the internal mucous membrane of the cells and ducts, they ramify in the substance of the mammary gland, and a large proportion of them "unite to form two principal vessels, which pass into the axilla, and there enter the same absorbent glands which receive the superficial absorbent vessels." Those from the sternal aspect of the mamma pass into the anterior mediastinum, but some wind round the nipple and enter the axilla. The absorbent vessels of the concave surface of the breast take a different course: the posterior ones penetrate the intercostal muscles, and enter the absorbent vessels which accompany the aortic intercostal arteries, while the anterior, or those on the sternal side of the mamma, join the absorbents of the

internal mammary arteries. The former pass into the thoracic duct in the posterior mediastinum, while the latter accompany the superficial vessels which have already been described. "A most extraordinary opinion has been broached," says our author, "that all the absorbents carry the chyle to the breast—an opinion at variance with the nature of the fluid, entirely inconsistent with every injection that I have made, as they all pass from and not towards the breast, and irreconcilable with the valvular structure of these vessels." (p. 88.) This paragraph well illustrates how easy it is for one who is in the constant habit of examining for himself by dissection the natural construction of the human body to overthrow an hypothesis founded upon no other data than those derived from a too fertile imagination.

To demonstrate to our readers the value of a thorough knowledge of the course of the absorbent vessels, we have only to refer to the history of malignant diseases which are propagated to distant organs by their means. Mainly on this knowledge must depend the power of forming a just prognosis, as well as of deciding whether or not an operation should be performed for the extirpation of the disease. The progress of malignant diseases in the course of the absorbents has never yet, we think, sufficiently occupied the attention of surgeons, either in this or in any other country; and we therefore consider this portion of Sir Astley's book as particularly valuable. This section concludes with a description of the course which malignant diseases of the breast follow in their propagation to the absorbent glands, and which the author points out as not being uniform; for when an affected gland becomes obstructed, the progress of the disease is checked in that immediate direction, and the poison will diverge into a collateral set of absorbents. "I have a preparation," he says, "which shows a plexus of vessels of communication at the roots of the absorbents, from which other vessels arise, taking a course into other glands; and thus when the glands in one axilla are obstructed, those of the other axilla will become similarly affected by absorbent spassing from the disease across the chest." (p. 88.) Sir Astley does not enter at all into the consideration of the particular malignant diseases of the breast, leading us to cherish a hope, which is strengthened by a passage in his Introduction, that he will shortly present us with a volume devoted entirely to that subject, in completion of the work which he has already commenced. From his pen we should doubtless receive, what is now very much wanted, a practical and precise exposition of the diagnostic marks by which, in the progress of malignant disease, the enlargement of the glands from the absorption of morbid matter, is to be distinguished from their increase in size resulting from common irritation; and we are sure that such an exposition, by such an author, would render the volume in question invaluable.

The structure of the mammary gland in the male, though the author dwells on it with considerable detail, appears to us to resemble, in most points, so nearly that of the female, that we shall proceed at once to the most peculiar and apparently most important of its constituents—its absorbent glands. With regard to its general organization, however, we will just observe that it consists of two parts—of very minute cells, and of small conical ducts, which divide into numerous branches in the gland, and terminate in straight ducts, which end in very minute orifices in the nipple. In their form, divisions, and course through the nipple,

they all form a miniature resemblance of the gland in the female. The most extraordinary part of the structure of the male breast is its absorbent vessels, which are comparatively larger and more numerous than in the female, though we are not acquainted with any use which can be attributed to them. Sir Astley describes, at length, their course and the situation of their glands, with frequent reference to the plates 2 and 3 of the male breast, in which they are delineated. With respect to their function, he concludes with the following remark :

"It appears from this account of the absorbent vessels of the male breast, that when any secretion proceeds in it, as there would be great difficulty in its escape at the small orifices at the nipple, the fluid is taken up by the absorbent vessels, and carried into the circulation. Whether this fluid is necessary or not to the blood, I have had no opportunity of ascertaining, but the structure is very curious, and the assemblage of absorbents is quite extraordinary." (p. 186.)

There is nothing more remarkable in the relative conformation of the sexes—particularly when we consider their respective distinguishing characteristics—than the structural identity of their mammary apparatus, which in both is at such an advanced stage of development at the period of birth, as seems to prove that it performs some important function in the animal economy, unconnected with the generative organs. It would be absurd to suppose, as has been stated, that the breast of the male exists only for the sake of symmetry, inasmuch as it is comparatively larger at birth than at any subsequent period, and produces then, like that of the female, a secretion. This identity continues until puberty, when a new action is set up in the female breast, rendering it directly and uniformly sympathetic with the organs of generation, and preparing it to furnish nourishment to the young. In the unimpregnated female it is probable that a secretion is constantly going on, which is regularly conveyed into the venous blood. And even at parturition the quantity of milk secreted is so much greater than is required for the support of the infant, that a considerable portion is re-absorbed into the blood of the mother, and serves again for her nourishment. At the epoch of puberty in the male, when the generative organs suddenly increase, and seminal secretion commences, the mammary glands always become excitable and undergo a certain change, showing that they sympathize, at any rate to some extent, with the organs of generation. Is it possible that they furnish any elements to the blood, or cause it to undergo a change, fitting it for the elimination of the seminal secretion? In the female, as soon as lactation ceases, the breast reverts to the size and conditions which it presented previously to conception. During menstruation it invariably becomes tumid, apparently from an increased determination of blood. Is it the purpose of this process that albumen, in some form or other, may be secreted in the breast and be conveyed into the general circulation to compensate for the loss sustained by the menstrual excretion? At the period of life when menstruation ceases, the glandular portion of the breast diminishes nearly to its size before puberty. This diminution, however, is not always obvious, as the deposition of fat, in many instances, causes the breast to retain its former external appearance.

Evolution of the Breast. In the section of this work, devoted to the evolution of the breast, the author has accurately described the progress of development of the various constituent structures of the

mamma. In the fœtal state, the mammary gland is found immediately behind the nipple, is of a rounded form, and imbedded in the subcutaneous adipose tissue. Its vascularity distinguishes it at once from the surrounding parts, and it presents indeed a well-defined circumscribed body. But slight indication of a nipple is yet to be perceived; and this part is rather a cleft than a prominence. At birth a thick secretion may be pressed out of the excretory ducts, of which circumstance nurses are well aware, and are too prone to exercise undue pressure in removing it, from an erroneous idea that its presence is injurious. The same appearances are presented at this period by the glands of the female and male, as will be seen in comparing pl. ii. of the former with pl. i. of the latter. During the first year of life, the gland diminishes both in size and vascularity. Between the second and third years it becomes separated and even isolated as a distinct organ, by being inclosed, as has been above described, in the fascia mammæ. It undergoes but little further alteration till the ninth year, except that its figure becomes less rounded. (See figs. 1, 2, 3, 4 of pl. ii.) At the age of eleven and twelve, the diameter of the gland is greatly and suddenly increased. At thirteen, its anterior surface becomes concave, whilst its edges are turned up, from the breast growing faster than the fascia mammæ. At fourteen, there is a perceptible increase in size. At sixteen, not only has its evolution greatly advanced, but, according to our author, some of its lactiferous tubes can be injected. At from twenty to twenty-one, the gland has obtained its full size before lactation, and all its constituent structures are perfected. (See fig. 5 to 11, inclusive, of pl. ii.)

Soon after birth the cleft which had occupied the position of the nipple becomes converted into a cone, and an areola appears around it, which increases but little in size up to the tenth year, when it somewhat enlarges. At twelve, not only are the nipple and areola increased in size, but small glands are perceptible on the surface and at the circumference of the latter. At fourteen, the nipple is still further increased; its papillæ begin to evolve, with small clefts between them; the areola becomes convex from the growth of the mammary gland behind it, and both it and the nipple are of a bright red hue. The roundness and prominence or intumescence of the breasts now appear. From fifteen to seventeen, earlier or later, according to the temperament of the individual, the nipple becomes perfectly evolved; the areola is now more than an inch in diameter, and its tubercles are enlarged. No further change is perceived prior to lactation. It is singular that the areola is not present before birth, either from such a congeries of vessels not being then required, or from the dark colour of the blood not becoming perceptible until it has been exposed to the atmosphere.

Influence of Gestation. The next section of the work treats of the effects of gestation and lactation upon the breast. During gestation the mammæ receive much larger quantities of blood than usual: they generally swell, become painful, feel heavy and are tender to the touch: if small before, they now undergo their proper evolution. The nipple increases in size, and its papillæ and mucous follicles are developed. The areola becomes darker in colour, thicker, and its diameter increases from one to two inches; the rete mucosum being much enlarged. We may add to these summary signs of pregnancy the not infrequent occurrence of a secretion and discharge of milky serum, although sometimes

there is no appearance of milk until after parturition. The above phenomena are not infallible signs of pregnancy, as they may also accompany hypertrophy, polypus, and some other affections of the uterus. In cases of uterine disease, however, it may be remarked, the areola is neither so dark nor so much developed as in pregnancy; and this circumstance should be borne in mind as constituting an important distinction between real pregnancy and morbid affections which simulate it. It is not perhaps impossible that during pregnancy the external atmosphere may act upon the blood in the areola, and thus influence in some way the secretion of milk. The tumid enlarged state of the mammaræ continues until after parturition; but it is not until after suckling has gone on for some time that the milk-cells become fully developed; so that a woman, says our author, who dies of puerperal fever is not the best subject from whom to take the mammaræ for the purpose of injection. After a few weeks' suckling the nipple becomes much elongated, its papillæ prominent, and its extremity enlarged, so as to facilitate the adhesion of the infant's lips.

The secretion of milk commences generally on the third or fourth day after the birth of the child. Directly after parturition the blood, which is no longer required by the uterus, is directed to the breast for the secretion of nutriment for the infant. The author states that excitement, both constitutional and local, attends the commencement of lactation, a sufficient proof that the mother is urged by nature to suckle her infant as soon as her breasts can supply it with milk; for immediately the child partakes of the proffered nourishment, the painful tension of the breast subsides, and all the symptoms of irritative fever are relieved. The action of the child's lips is the natural means of relieving the breast and of causing the secretion of milk to continue; the first fluid, however, which the infant extracts is not milk, but is a secretion believed to be of essential service as a purgative in removing the meconium which might otherwise accumulate and become injurious. The early application of the child to the breast has also the advantage of elongating the nipple and fitting it for its future functions, before the glands have become too distended and hardened by the abundance of the secretion of milk. After lactation is established, the secretion of milk is either constant or occasional. In the former case the milk-tubes are supplied by a slow and continued production of fluid, which being retained in them for a long time undergoes a certain change, rendering it fitter for the nourishment of the child. Such retention is evidently requisite, for when the child is too frequently put to the breast, the milk evidently loses some of its nutrient qualities and the mother is also debilitated. The occasional secretion is that which is termed by mothers and nurses *the draught*, when there is a sudden rush of blood to the gland, and the milk is secreted so suddenly that it sometimes spirts out of the nipple. The sight of the child or the pressure of its hand or head to the breast are the most frequent causes of occasional secretion. It has been supposed by some physiologists that when the breast is from any cause distended with milk, the latter passes into the surrounding cellular membrane and absorbent glands; and Haller has spoken of the vessels which convey it to the latter. It was this doctrine, perhaps, which led to the absurd hypothesis that the constituents of the milk are furnished by the absorbents: a supposition which seemed to be favoured by the fact that the mammary absorbents are eight times more numerous than the blood-vessels; and also because the milk more re-

sembles chyle than blood, both the former fluids containing muriate of potash, of which there is none in the latter.

The supply of milk in the human female is often superabundant, and has to be removed by artificial means; neither its quantity nor its quality, however, seems to depend upon the size of the mammæ, but rather upon the constitution and general health of the individual. Sir Astley found that the quantity of milk furnished by the breast of a woman whose infant was eighteen weeks old was two ounces, but only half that quantity when it was drawn off more than once a day. A woman seventeen months after delivery milked two ounces from her breast when the child had been seven hours absent from her. The morning's milk he has almost constantly found greater in quantity than the evening's. The secretion of milk will continue for many years in a healthy mother, if encouraged by the application of the child to the breast; and the author cites instances of the great length of time it has endured, and even of mothers having suckled two of their children consecutively without any intermission of the secretion. Wet nurses have also been known to suckle two children consecutively. Sir Astley considers that the proper time for weaning is sufficiently indicated by the appearance of teeth, and by the concomitant capacity of the child to digest other food. The secretion, should it continue after this period, may be suppressed by the application of evaporating lotions and the administration of active purgatives in the morning.

After mentioning the causes, such as inflammation, the formation of abscess, general constitutional derangement, &c., which prevent a mother from suckling her infant, the author observes that this duty is too often neglected from caprice, the fear of trouble, the dread of spoiling the figure, or from anxiety to avoid the confinement it requires; and in some cases it may arise from a desire to bear a great number of children. Women who become pregnant again during lactation should wean the child, as the milk is now deteriorated in quality and disagreeable. This change may be easily explained when we reflect that the new function of the uterus must necessarily interfere with the supply of blood to the breasts. Should the mother be compelled from any cause to wean her child prematurely, there is no necessity, according to Sir Astley, and in this view he is supported by Drs. Walshman and Key, that the wet nurse who succeeds her should have been giving suck for precisely the same period; inasmuch as after the first few weeks of lactation the milk does not undergo any appreciable change. It is a singular fact that should the child be deprived of the breast from any cause and should then be put to it again after the lapse of several weeks, the secretion of the gland will return and the child be supported by it.

The advantages which accrue to both mother and offspring from lactation are beautifully illustrated by the author. After remarking that women who have been previously delicate become strong and healthy whilst they suckle, he describes other numerous benefits which they derive from the performance of this duty.

"The giving suck may be the means of preventing or of lessening the tendency to puerperal fever by determining the blood to the breast for the secretion of milk, and withdrawing it from the uterus, peritoneum, and iliac vessels. Suckling also diminishes the disposition to malignant diseases of the breast; for although women who have had children are still liable to cancerous and fungoid diseases, yet it is undoubtedly true that breasts which have been unemployed in suckling, in women who have been married but who are childless, and in

those who have remained single, are more obnoxious to malignant diseases than those of women who have nursed large families; and if it were only to lessen the probability of the occurrence of such horrible complaints and causes of dissolution, women ought not to refuse suckling their offspring. A woman who has children and has suckled them is undoubtedly a better insurable life than a married woman who has no children or one who has remained single. A female of luxury and refinement is often in this respect a worse mother than the inhabitant of the meanest hovel, who nurses her children and brings them up healthy under privations and bodily exertions to obtain subsistence, which might almost excuse her refusal. The frequent sight of the child, watching it at the breast, the repeated calls for attention, the dawn of each attack of disease, and the causes of its little cries, are continually begetting feelings of affection which a mother who does not suckle seldom feels in an equal degree, when she allows the care of her child to devolve upon another, and suffers her maternal feelings to give place to indolence or caprice, or the empty calls of a fashionable and luxurious life. It is, however, melancholy to reflect that a life of high civilization and refinement renders the female less able to bear the shocks of parturition, less attentive to her offspring, and less capable of affording it its natural nourishment; so that she is often a worse mother in these respects than the female of the middle ranks of life or even the poorest cottager." (pp. 137-8.)

Besides the other evident benefits which the child derives from the breast of its mother, this is its natural pillow, and affords it especial relief during the irritation attendant on dentition, when, says Sir Astley, "the mother's anxiety contributes to the relief of the child, for it renders her milk a purgative, and thus acts usefully as an aperient when the system is in a feverish state, and thus operates as the best medicine." When, however, the mother is from any cause incapable of nourishing her offspring, the application of the child to the breast of another is infinitely preferable to bringing it up by hand. Dr. Merriman is of opinion that taking into consideration all classes of society, not more than two in ten children nourished by the latter method survive from eighteen to twenty months.

With respect to the appropriate food of the mother during lactation, the author, who has investigated this subject at considerable length, and has received information from different parts of the country on the habits of women who nurse their own children, has arrived at the conclusion that in the higher classes of society, at any rate, women take food in greater quantity and of a more stimulating nature whilst suckling than is either necessary or advantageous. Still no general law can be laid down either as to the quantity or quality of the food to be taken; and the instinctive cravings of the mother will be found the best indication of the amount of nourishment required. Improper diet of the mother, for instance fruits in some cases, or acids and fermented liquors, may injure the quality of the milk; which may also be deteriorated by the return of the menstrual secretion, on the appearance of which weaning should instantly be recommended, as the mother is incapable of supporting the double secretion, and as the milk is now rendered unfit for the support of the infant. In reference to the influence of various mental conditions upon the milk, the author confirms, from his own experience, the injurious effect of fits of anger, grief, anxiety, &c. upon its secretion, and narrates two cases in which females in consequence of a sudden alarm were compelled to give up suckling.

The milk is capable of being greatly changed in quality by pharmaceutical agents. This is proved by this circumstance amongst many others, that numerous children in our hospitals with a congenital vene-

real taint are cured by the administration of mercury to the mother. Purgatives very readily affect the milk, and act through it upon the bowels of the child. Olive oil, castor oil, confection of senna, and the compound extract of colocynth, Sir Astley seems to regard as the best purgatives for women during lactation: saline cathartics he disapproves of as likely to produce too violent an effect upon the infant at the breast. The milk of a patient of Guy's Hospital who had been taking iodine for a fortnight was tested by Dr. Rees with sulphuric acid and starch, and strong indications of the presence of that medicine were thus detected. Chevalier, Henry, and Peligot administered various medicines to asses, and found traces of them afterwards in the lacteal secretion; of common salts, for instance, in abundance, as also of sesqui-carbonate of soda, and of sulphate of soda when administered in doses of two ounces. Iodide of potassium also affected the milk, as did the oxide of zinc, the tris-nitrate of bismuth, and sesquioxide of iron; but sulphate of quinine, the alkaline sulphurets, the salts of mercury, the nitrate of potass, could not be detected, even after the ingestion of these drugs in considerable doses.

For some interesting particulars respecting lactation amongst the blacks in the West Indies, contained in two letters addressed by Dr. Young to Sir Astley, we must refer the reader to the work itself.

Milk. The author enters at some length into the subject of the chemical composition of the milk; but we can only find room for a few of the more interesting particulars. He first describes the qualities and proximate principles of this fluid in the mammalia generally. He observes that its component parts unite the qualities of animal and vegetable matter, and are diluted and combined by a watery solvent. Its colour depends upon a number of oily globules, which float through the fluid, forming an opaque emulsion with the caseous matter, and which may be separated by filtration with good blotting paper, the remaining fluid being thus rendered clear and transparent. These globules not being chemically combined with the other constituents rise to the surface of the milk, when it is allowed to rest and form the layer of cream.

"Human milk when first drawn appears more blue in its colour than that of the cow; indeed it resembles whey, or cow's milk much diluted with water." Soon after it is drawn, if allowed to rest, it divides like ordinary milk into cream and milk, "but with this striking difference that the milk in the human subject appears semi-transparent like whey, instead of being white and opaque like that of the cow, so that it may be said to divide into cream and whey." During the first ten days of its remaining at rest, abundance of cream and a little curd are separated; lactic acid is also developed; but it does not appear from the experiments of the author that these changes are completed until the milk has been exposed for a period of two months. According to Dr. Rees its specific gravity appears to be 1.0358: its solid contents 12 per cent. The specific gravity of the cream is 1.021. Widely different from what is observed in other animals, the cream in the human milk varies in quantity according to the health, food, habits of life, and temperament of the mother, and also according to the age of the child. From a series of experiments detailed in the work, it would appear that the quantity of cream is from one fifth to one third that of the milk, the variation depending upon the causes above mentioned. "In a woman who was very poor, and who had an exfoliation of the os frontis, seven measures of

milk gave only one of cream, while in a woman highly fed, nine measures of milk had three and a half of cream." In the same individual the quantity varies according to the time which has elapsed since the birth of the child. From Sir Astley's experiments, the results of which are embodied in a table, it seems established that during the first eight days a very large proportion of cream is formed; the variations which occur subsequently appear inexplicable in the present state of our knowledge.

This section of the work concludes by a communication on the nature and chemical composition of milk from the pen of Dr. Golding Bird, which contains an excellent summary of our present knowledge, and which we recommend to the attention of our chemical readers.

Comparative Anatomy. In the chapter on the comparative anatomy of the mammary gland, which concludes the present work, that structure is described as it exists in some species of the classes of graminivora, carnivora, and omnivora. Its secretory apparatus in all mammalia bears a strong resemblance to that in the human female and presents the same constituents. In all there is a prominent nipple, with the exception of the whale tribe and the ornithorynchus. In the number of the mamillary tubes or ducts, however, considerable varieties are found. The cow, the ewe, and the goat have but one tube to each teat, the rhinoceros, on the other hand, has twelve, probably from the great size of the young rhinoceros requiring a freer exit for the milk. The pig has two tubes in each teat; the hare, rabbit, cat, and bitch have several; the guinea-pig and porpoise only one. The graminivora differ from the carnivora in the size of their reservoirs, which are enormously large. The supply of blood, as has been before observed, varies in its source according to the position of the gland in different animals, but it is nevertheless equally available in all cases for the purposes of secretion. The nerves, too, distribute the same influence, and are similarly furnished with anterior and posterior filaments from the medulla spinalis, as well as a branch from the sympathetic, whether they are derived from the cervical, dorsal, or lumbar regions of the spinal marrow. It is a singular fact that the mammary glands are the only secretory organs which derive their nerves principally from the spinal cord.—This chapter is illustrated by ten plates, of several of which the descriptive text contains an analysis of the milk of the respective animals.

We have now laid before our readers not only by far the most complete account of the anatomy of the breast ever published, but also one which leaves little if anything more to be done on the subject by future enquirers. Sir Astley Cooper will always be the standard authority on the structure of the mammæ, and the work we have reviewed will be as valuable to our successors as it is to us, the contemporaries of its author. We venture again to hope that it will shortly be followed by a volume on the malignant diseases of the breast.

In taking leave of our author, and in thanking him warmly for the good service he has now and ever done to science, we need hardly wish him any fresh reward for his toils; for a life spent as his has been, is, and we doubt not will be, in the successful pursuit of truths the most important to the well-being of mankind, brings with it infallibly the loftiest and purest enjoyment: but we will pray divine benevolence to grant that one who has conferred so many blessings on his race may yet long be spared to enjoy the gratitude and honours which he has so nobly acquired.

ART. VI.

1. *The Medical Jurisprudence of Insanity*. By J. M. PAGAN, M.D., Lecturer on Medical Jurisprudence, &c.—London and Glasgow, 1840. 8vo, pp. 327.
2. *A Treatise on the Medical Jurisprudence of Insanity*. By J. RAY, M.D. With an *Introductory Essay* by D. SPILLAN, M.D.—London, 1839. 8vo, pp. 430.
3. *Du Suicide, de l'Aliénation Mentale, et des Crimes contre les Personnes*. Par J. B. CAZAUVIEILH, Docteur en Médecine.—Paris, 1840. pp. 325.
4. *On Suicide, Insanity, and Crimes against the Person*. By J. B. CAZAUVIEILH.—Paris, 1840.
5. *A Letter to the Right Honorable the Lord Chancellor, on the present state of the Law of Lunacy; with Suggestions for its Amendment*. By a Barrister of the Inner Temple.—London, 1838. pp. 16.
6. *De la Folie, considérée dans ses Rapports avec les Questions Médico-judiciaires*. Par C. C. H. MARC, Premier Médecin du Roi, &c.—Paris, 1840. T. II. pp. 560-738.
- Insanity considered in its Medico-legal relations*. By C. C. H. MARC, Chief Physician to the King, &c.—Paris, 1840. Two Vols.

IN the Thirteenth and Seventeenth Numbers of this Journal, we have devoted articles of some length to the subject of Insanity. In the first place we have presented our readers with the opinions of the most experienced modern writers on the causes, varieties, and treatment of mental alienation; and secondly, we have dwelt particularly on the rules for the organization and management of lunatic asylums. It is now our purpose to call the attention of the profession to those points connected with the subject of insanity, which the length of our former articles did not allow us to notice. The medico-legal questions which affect the insane are admitted by all to be of paramount importance; and it is much to be regretted that in this country so little attention has been hitherto paid by members of the medical and legal professions to questions of such vital interest. The confinement of persons on groundless allegations of insanity—the premature liberation of lunatics supposed to be cured—the setting aside of wills and deeds executed by the insane—the annulling of the marriage contract—and, lastly, the execution of persons for crimes committed while in a state of insanity, are surely circumstances which must forcibly fix the attention even of the most indolent practitioner, especially when he considers that in each case he himself may become the instrument of the improper administration of the law.

Three works on the Medical Jurisprudence of Insanity have recently appeared: one by Dr. Ray, an American physician; one by Dr. Pagan, of Glasgow; and a third by M. Marc, of Paris, whose premature death, we regret to say, immediately followed the completion of his work. We shall commence with the work of the Scottish author.

Dr. Pagan first considers "*unsoundness of mind*," as it is defined by lawyers, and he then passes to the medical signification of the term "*insanity*." After a few remarks upon the causes of mental derangement, he gives a short summary of each of its forms, adhering to the divisions

proposed by Pinel and Esquirol, and now generally followed by the profession. The medico-legal relations of each of these divisions are distinctly and successively considered. Thus following the chapter on Mania, we have an exposition of the circumstances which may justify restraint—the facts connected with the execution of wills and deeds—with the plea of irresponsibility for crimes committed during this state—the means of detecting concealed and feigned mania, &c. This plan necessarily involves some repetition, since each question is separately reconsidered for each form of insanity; but we do not regard this as a fault in a volume expressly intended for practical reference and assistance. We perfectly agree with the remark of the author in his preface, that this is the arrangement by which correct notions of the various forms of unsoundness of mind, and of the medico-legal consequences that result therefrom, can be most easily obtained.

It is well known that no consistent legal definition of what constitutes unsoundness of mind (“*non compos mentis*”) has yet been given. No two Chancellors have agreed upon the exact grounds on which a writ “*de lunatico inquirendo*” should be issued. Lord Hardwicke held that there must be a depravity of reason or a want of it; and he drew, to us, an unintelligible distinction between “*infirmetas mentis*” and “*insanitas mentis*.” The former case involving *weakness* of mind, with incapacity on the part of a person for managing himself or his affairs, was not, in his view, a subject for enquiry. Lord Eldon dissented from this doctrine, and issued a commission where there was imbecility, not strictly amounting to insanity, but calling for as much protection from the law as actual insanity. In looking at the conflicting decisions on this point, all we can say is that unsoundness of mind involves a morbid or at least a defective condition of intellect, with an incompetency on the part of the person to manage his affairs. Neither condition will suffice without the other; for the intellect may be in a morbid state, and yet there may be no incompetency; or the incompetency may depend on bodily infirmity or a want of education, and may be purely relative—that is to say, vary with the station of the individual in society.

We fully agree with Dr. Pagan that all the law-definitions of insanity teem with error; that they involve absurdities long since exploded; and that they are very far behind the present state of psychological knowledge. He condemns Lord Coke’s definition of “*non compos mentis*” as erroneous and imperfect; indeed, we may say that it has but little more relation to insanity than to witchcraft; and yet we find it sometimes followed as authority in law proceedings. The iron rule of precedent thus binds down the judgment; and often prevents the law from receiving that light from the advance of modern science, of which, in reference to the questions we are now considering, it stands so much in need.

From a review of the arguments of counsel in many cases of contested insanity, we might be almost led to suppose that the arbitrary dicta of great law-authorities, who lived 200 years ago, were of more importance in settling these questions than the knowledge derived from a careful observation of disorders of the mind. Thus in one case it was contended “that the law only recognizes two kinds of insanity—lunacy and idiocy, and although lunacy has been of late described in other words as ‘*non compos mentis*,’ yet the words only were changed, not the law.” When

we consider that the legal definitions of lunacy and idiocy are, in a medical point of view, totally inapplicable to those states, and that some of our judges are extremely jealous of admitting any others, we shall be prepared to understand the kind of embarrassment under which a medical witness may labour, who is called to give evidence in a particular case. The person must be proved either lunatic or idiot, and that not in a medical but in a legal sense. This is a reversal of the old French axiom : "Quand les hommes disent que telle chose est, et la nature dit que telle chose n'est pas, il faut en croire la nature." How is a medical witness to conduct himself? He may not be able to swear that in his opinion the party comes up to the strict *legal standard* of lunacy or idiocy; and yet he may not have the smallest doubt of his mental incapacity. His rule of conduct should be to examine the case repeatedly; and having formed an opinion of the state of mind of the party, he should give his evidence accordingly, "disregarding all descriptions, all standards, all legal definitions whatever." From the excellent decisions which have been given of late years in our ecclesiastical courts, in cases of contested wills, there is great reason to believe that a wider and more comprehensive view of this subject is developing itself among our law authorities; and that in future, questions of this kind will be decided less by antiquated precedents than by sound medical opinions.

By a late Act of Parliament it is settled that the term *lunatic* shall extend to any idiot or person of unsound mind, or *incapable of managing his affairs*. If, as it is said, the last term is to be taken as a legislative exposition of the first, then the subject will become henceforth much simplified. We shall hear no more of casuistical distinctions made between weakness and unsoundness of mind; the simple test for legal interference will be an incapacity on the part of a person, from decided *mental infirmity*, to manage his own affairs.

It is not our intention to follow the author into the medical definitions of insanity; we agree that they are imperfect, and that it would be difficult to find one which includes all who are insane, and excludes all who are not. The reason for this is obvious in the varying characters and in the imperceptible gradations of disordered intellect observed in insanity. The following description comprises the class of cases which offers the greatest difficulties to the medical jurist:

"The senses perform their functions incorrectly; the faculties of attention, comparison, and association, &c. are likewise in a diseased state, and the person of course is insane. But it is not to be presumed that in every case of insanity all the intellectual faculties are in such a state of disease as to be incapable of performing, in some degree, their usual office. There are cases of general insanity in which the function of no one of the faculties of the mind can be observed to be performed even in the most imperfect manner. There are other instances in which all the faculties seem to be annihilated; no mental operation, so far as we can judge, is capable of being performed. But it far more frequently happens that the mental and moral powers are partially diseased or partially destroyed. Now the degree of this state of disease or decay is very various, and the kind of it is equally so; these varieties most probably being dependent upon the extent of disease in certain faculties and the integrity of others—the combination of faculties affected—how far the senses perform their functions incorrectly—in what manner and to what degree. For example, in reference to the sense of sight, whether objects appear larger or smaller, or of what colour, at what distance, and so forth. The whole of the faculties of the

mind are liable to become diseased; they may each or all of them be affected, and they may be diseased in various degrees and in various combinations. The combination may unite disease of the intellectual with the moral faculties; and, I believe, it is no uncommon thing to find cases in which, along with depravation of some of the faculties of the mind, there is exaltation and increased power of some other, as, for example, the imagination." (*Pagan*, p. 20.)

It is important for a medical jurist to bear in mind that insanity does not exclusively consist in disease of the faculty of attention, in errors of perception and comparison, exaltation of the imagination, and defective judgment. Something besides the intellectual faculties must be taken into consideration, as, for example, those important powers by which men are influenced to good or evil—the moral faculties, the passions, the affections. These exercise the most important influence over the individual, not merely as a moral, but as an intellectual being. "Disease of the moral faculties may exist when it is impossible to discover any intellectual disorder." (p. 23.) While the author does not deny that a man may be insane from a disease of the moral as well as of the intellectual faculties, he thinks that the former most frequently includes or induces disease of the intellectual powers likewise. The condition of the moral faculties, therefore, requires as close an observation as that of the intellectual.

The following remarks are worthy of attention:

"The insane are for the most part totally unconscious of their condition. They believe themselves to be in the enjoyment of perfect health; they are satisfied that their feelings are real, and that their thoughts are true; and any attempt to reason them out of their belief in their sanity would be just as idle as to endeavour to persuade a man of sound mind that his feelings and thoughts were unreal and untrue. The principle of belief in both is the same. This fact is of importance in reference to medical jurisprudence. There are exceptions to this rule, however. Some are well aware that their intellectual faculties are in a disordered state: and it is a symptom almost characteristic of diseased volition for the patient to be quite conscious of his unfortunate malady." (*Pagan*, p. 26.)

Georget remarked that the insane either forgot altogether the circumstances which preceded the attack, or they were continually recalled and became the cause or the pretext of all their intellectual disorder. He also thought that occurrences which take place during the disease are minutely remembered after recovery. This latter opinion is not universally correct; but that the power of memory may exist to a remarkable extent, even where it is supposed to be absent, is clearly shown by numerous facts.

We shall pass over the *causes* of insanity, as these have been amply discussed. The characters of mania present nothing new. The diagnosis of mania is of considerable importance, and in a medico-legal view it is especially necessary to distinguish between it and delirium. There is, it is well known, a close resemblance between the delirium which proceeds from cerebral disease and the acute form of mania. They are both attended with the same intellectual and moral aberrations, and the same degree of excitement, amounting often to outrage and fury.

"But the mode of aggression is very different. The alienation of the mental faculties is the first symptom which presents itself in an attack of mania, while delirium succeeds to other symptoms of physical disorder: delirium is for the most part attended with febrile excitement to a greater extent than is found in mania. Delirium and mania differ in their mode of aggression, in their pro-

gress, and termination—delirium being altogether an accessory of the disease of which it is a symptom; it exists as long as the disease on which it depends, and no longer. In short, the previous existence of physical disease, the mode of aggression, the progress and termination, sufficiently distinguish delirium from mania." (*Pagan*, p. 69.)

In delirium tremens, consequent on the abuse of intoxicating liquors, the attack generally commences with tremors of the hands, great restlessness and long-continued watching. Illusions of various kinds, and often having reference to past occupations, with hallucinations succeed. Patients in this state are frequently violent, and are especially prone to the commission of suicide.

Mistakes are said to have occurred where persons labouring under delirium have been ordered into confinement as maniacs—thus seriously compromising the reputation of a practitioner. With the use of ordinary care, the diagnosis is not likely to be difficult.

On the subject of personal restraint in mania the author prudently adopts a *mezzo termine*. The object of restraint, he says, is twofold: to prevent the injurious consequences which might result to the maniac himself or to others from his remaining at large, and to contribute as much as possible to the cure of the disease. The first is undoubtedly the more important object, by which a medical jurist must be guided; the second is rather a question for the physician, and it is one upon which opinions are considerably divided. The abuses to which the system of restraint formerly led have produced a complete revulsion in medical opinion. The author appears to us to discuss the point with candour and good feeling.

"Whenever the patient has given us the slightest reason to fear that his own safety, or that of his associates or friends, is in danger, and if his change of character threatens injurious consequences to his own or his family's interests—if he be recklessly squandering away his means—if he be irritable or outrageous, and threatening personal violence to any one, then we are quite justified in having him placed under such restraint as will not only most effectually prevent any accidental injury to himself or others, but will be conducive to his cure. The patient cannot sustain any injury by our conduct being thus regulated. It is certainly no light matter to interfere with the personal liberty of any one, and the law is very properly highly jealous on this point, even in the case of insanity; but it is better that a man should suffer the imposition of slight restraint than that he should be injured either in his person or his means, or in those of his family or friends. Change of character is not insanity; but it may be evidence of insanity, and it is a most unusual thing for men all at once to assume a character absolutely foreign to their natures, independently of incipient unsoundness of mind." (*Pagan*, p. 75.)

Violence of temper, haughtiness, and eccentricity must not be mistaken for incipient insanity. We are not merely to compare one man with his fellows; for in this case eccentricity or fits of violent passion might be pronounced evidence of insanity. We must find out the change of character by enquiring whether the individual is different at one time to what he has always been—whether his habits and feelings have suddenly undergone any unusual change. A violent-tempered man may have fits of greater violence than common; but still this is his natural character, and must not be set down as indicative of insanity.

We seldom find questions raised in our law-courts as to the validity

of wills and deeds executed by persons in a state of mania; but it is by no means unusual in the incipient stage that this should be brought forward as a plea of irresponsibility for crimes. Persons thus affected seldom commit murder, except when impelled to it by accidental circumstances, such as the attempt to enforce restraint, or to interfere with habits depending on their hallucinations. These are cases of difficulty. Sometimes the crime itself may have actually been the exciting cause of the disease. A person labouring under insanity is not liable to punishment, even for a crime committed previous to the attack; but the same exception holds with one labouring under bodily disease. In either case they would be liable to punishment on recovery; while if the crime were committed during an attack of insanity, the individual would be wholly exempt from punishment even after recovery. It is a fact worthy of notice that, while the commission of a crime has sometimes suddenly led to the access of insanity in a previously sane person, the sight of the murdered victim has often suddenly restored the insane perpetrator of a crime to reason. In the first case we should be apt to suppose that the insanity was feigned; in the second that it had not existed during the commission of the crime; and in either case, unless we reflected deeply on the circumstances, we might lead to the unjust interposition of the law. In the following is a case where an attack of mania occurred so speedily after the commission of a criminal act as naturally to have led to the suspicion that the disease was feigned.

"Two men were committed to prison on a charge of theft; and the officers who had them in charge, fearing that their prisoners might make an attempt to escape, at a lonely part of the road over which they had to travel, called upon a man by the way, and requested, as a favour, that he would assist them in conveying the prisoners to gaol. The poor man was sitting at home, quietly pursuing his trade of a shoemaker, and upon the representation of the officers as to their fears of an escape being attempted, he agreed to accompany them, and to take a gun with him for greater security. As had been anticipated, one of the prisoners leaped from the cart and ran off. The officers called to their assistant to fire, and he, thinking himself warranted to do so, under the circumstances and by their authority, fired, and wounded the man severely in the back and loins. He was himself immediately committed to gaol." (*Pagan*, p. 82.)

The whole of the circumstances had such an effect upon him, that he became violently maniacal. When hardly recovered, he was tried for the offence, convicted, and sentenced to six months' imprisonment. Owing to a proper representation on the state of the man's mind being made to the court, the sentence was not carried into effect.

In determining whether a *lucid interval* exists or not, "it is a useful criterion, to find out whether the person remembers what passed during the active stage of his disease. A distinct and accurate recollection of what passed during the active form of mania, is a favorable circumstance, as it is not, in the majority of cases, until the mental powers are restored to a state of comparative good health, that this is found to be the case." (p. 86.) The art with which a patient will endeavour to avoid all questions bearing on the subject of his delusion is well known; and the self-command which they are capable of displaying is illustrated by many recorded cases. A firm resolution on the part of a patient will sometimes baffle every endeavour to make him betray the nature of his delusion; and, unless some clue to this be previously obtained by the

examiner, he may leave the patient with the impression that he is perfectly sane. Dr. Pagan recommends that we should first try to gain the patient's confidence, by not contradicting him, but rather seeming to agree with him. Should this mode not be successful, "it may be proper to contradict him, and even irritate him so as to put him into a passion, when his caution will in all probability be got the better of." We doubt the propriety of following this last piece of advice, since some men whose only infirmity may be that of having naturally a violent temper might thus incur the risk of being locked up as insane. Dr. Pagan must be aware, from the rules which he has already laid down, that when a man is overcome by passion purposely excited, it is not exactly the time for a medical practitioner or a jury to pronounce an opinion on his sanity or insanity. We do not know any greater absurdity than that of putting abstruse metaphysical questions, as on the power and attributes of a Supreme Being, to one who never heard of metaphysics; or of asking difficult arithmetical questions of one who perhaps never advanced so far as the rule of three;—and yet it would be easy to bring forward numerous cases in which the insanity of parties has been actually tested by criteria so loose as these. The truth is, we can never compare the mind of one man with the mind of another without taking into consideration the various degrees of intellectual power with which men are naturally gifted, as well as the influence of their respective social positions in the development of their faculties. We must not expect more from a man's mind than it has shown itself capable of receiving, or in the words of our author: "We can only draw correct inferences as to the soundness of mind of any given person by comparing his present opinions with what it is certain that he must once have known." (p. 93.) That practitioner, therefore, is only fitted to conduct an examination of a supposed lunatic, whether the question relate to the commencement of insanity, the occurrence of a lucid interval, or to alleged recovery, who has made himself thoroughly acquainted with the past habits of the patient and the opportunities which he may have enjoyed of cultivating his mind.

The author does not notice the excellent rule suggested by Dr. Conolly, for testing the state of the mind in these cases, namely, that of inducing the patient to express his thoughts in writing, as in a letter addressed to his physician or to some confidential friend. We are satisfied that this would often answer in developing the existence of a delusion, where an examination would wholly fail. The current of thoughts would here be uninfluenced by the suspicion that the act of writing was to test the state of mind; and as no man can long write in a connected manner who does not think collectedly, so we should soon have ample evidence whether a delusion existed or not. Dr. Pagan furnishes, unknowingly, a remarkable instance of the efficacy of this plan at p. 19, where he describes the case of a lady of unsound mind who wrote a letter to a friend, in which was a quotation from scripture. She gave a correct reference to the part of the Bible where the passage was to be found—thus, *Philippians*, iii. 7, and immediately added, "These islands lie in latitude north,—and longitude—;" most probably referring to the geographical position of the Philippine islands. Here was undoubtedly a defect in the faculty of association; and as this defect, coupled with an

imperfect state of the powers of attention and comparison, exists to a greater or less extent in all cases of insanity, so we may expect that this method will often enable a practitioner to form a satisfactory opinion of the case.

When mania is *feigned*,—and the remark holds good in reference to the simulation of other diseases,—the part is generally over-acted. An impostor always thinks that he cannot crowd a sufficient number of symptoms into his disease; and this over-acting of the assumed part frequently affords the very best means of detecting the deceit. It is important to remember,

“As a valuable distinction between mania, real and feigned, that the really insane person rarely acknowledges his belief in his melancholy situation: on the contrary, he generally fancies himself to be perfectly sane, and prides himself on the correctness of his judgment. In the feigned case, we may have no attempt made directly to persuade us that he believes himself to be insane, but the impostor will make no endeavour to convince us that he is of sound mind. Tell an insane patient that he is mad, he instantly contradicts you: while if you express your belief in the hearing of an impostor that he is really insane, you will be met by no contradiction; so far from this, he will most probably endeavour to illustrate the truth of your remark by conduct which he thinks will be deemed conclusive evidence of his insanity.” (*Pagan*, p. 97.)

Dr. Pagan thinks that persons who are habitual drunkards should be placed under some legal restraint like lunatics. The justification for this would be the protection of the patient and his friends from the effects of his misconduct, and the promotion of his cure. Some German writers have treated of confirmed drunkenness as a variety of cerebral disorder, under the name of *dipso-mania*. The reasons assigned for restraint are good; and when we consider that habitual drunkenness, by weakening the powers of the mind, is allowed as an excuse for crime, it becomes the more necessary that the legislature should cautiously interfere; since otherwise it is laying down the rule, that a person whose state of mind is such as to render him irresponsible for the most heinous crime may be allowed with impunity to bring ruin upon himself and family.

Persons labouring under delirium tremens are considered incompetent by our law to execute a deed or devise property by will; but the incompetency only exists during the attack, for should the mind clear up, as in such cases it very often does immediately before death, then the individual may have so perfect a restoration of his faculties as to enable him to dispose of his property by will. These lucid intervals have been observed to occur more particularly in those cases where, after the subsidence of delirium the patient has sunk in consequence of some other physical disease. This fact is of importance to the medical jurist.

“Delirium tremens does not always immediately follow the excessive use of intoxicating drinks:—in many, perhaps in most cases, it does not make its appearance till the person, who has addicted himself to this vice, has abstained from their use for a certain length of time.” (*Pagan*, p. 118.)

The law does not hold persons responsible for crimes committed during an attack of delirium tremens, or delirium depending on cerebral disease. Acquittals have even taken place on charges of murder where there was deliberation and an apparent motive for the act. We agree with the author that, morally speaking, there can be no difference between the

criminality of acts committed under the influence of intoxication from indulgence to excess in intoxicating liquors, as an *immediate* consequence, and that of acts committed during delirium from the long-continued abuse of ardent spirits, as a *remote* consequence; but still the law admits a difference.

A considerable portion of Dr. Pagan's work is devoted to the subject of *monomania* under its various forms, as shown in a propensity to homicide, suicide, incendiarism, theft, demonomania, &c.; but we shall pass to the medico-legal applications of these varieties of insanity, merely observing that the symptoms and rules for diagnosis are amply and satisfactorily detailed. The first question relates to the restraint of patients affected with monomania; and here a nicer discrimination is required on the part of a practitioner than in a case of general insanity.

The mere existence of a delusion in a person is not of itself sufficient to justify the application of personal restraint. If there be an instinctive impulse to murder, or burn, or steal, or destroy everything which comes within his reach, there can be no doubt of the propriety of confining him until these tendencies have disappeared; and this becomes the more easy, since in such cases the patients themselves are conscious of and lament their infirmity. (p. 187.) Confinement should not be continued longer than is absolutely necessary for the object for which it has been imposed. Here again, we must guard against the danger of releasing a patient too soon.

Monomania is seldom *feigned*, from the difficulty, even to the most accomplished impostor, of acting up to the assumed character. Insanity is never, or but rarely, feigned for the purpose of avoiding the *suspicion* of guilt;—for this would be the most certain means of inviting suspicion. The imposition is only attempted when detection becomes inevitable.

The validity of deeds executed by persons affected with monomania, often becomes a subject of dispute. The practice of the law here indicates that the mere existence of a delusion in the person, does not necessarily vitiate the deed, unless the delusion form the groundwork of it, or unless the most decisive evidence be given that at the time of executing it the testator's mind was influenced by the delusion. Strong evidence is always derivable from the act itself, especially where the testator has drawn it up of his own accord. But the deed may be manifestly unjust to his surviving relatives, and it may display some of the extraordinary opinions of the individual, yet it will not necessarily be void, unless the testamentary dispositions clearly indicate that they have been framed under a delusion. Some injustice may possibly be done by the rigorous adoption of this principle; since delusion may enter into a man's act, without our being always able to discover it.

The evidence in these cases sometimes only amounts to proof of eccentricity on the part of the testator, or in the deed itself; but a clear distinction must be here drawn. The will of an eccentric man is such as might always have been expected from him: the will of one labouring under delusion is different from that which he would have made in an unaffected state; the instrument is wholly different from what it would once have been.

In the case of a Mr. Stott, a medical electrician, whose will was dis-

puted by his daughter on the ground of insanity, it was proved that this gentleman fancied that he could deliver pregnant women by means of electricity; but the deed was set aside, not so much on the ground of this absurdity, as of the violent and unnatural treatment to which he had subjected his daughter. It appeared that he had taken, as we now and then find in monomaniacs, a most unaccountable and causeless dislike to this girl from her earliest infancy.

Wills are sometimes contested more on the ground of eccentricity than on that of insane delusion, but the cases are different; and while in the one the validity is denied, in the other it is allowed. Dr. Pagan does not seem to have met with a remarkable case of this kind, decided in 1838, in our Ecclesiastical Courts,—viz. that of *Morgan v. Boys*. The testator in this instance died, leaving by his will a large fortune to his housekeeper. The will was disputed by his relatives, on the ground that it bore intrinsic evidence of his not having been in a sane state of mind. After having bequeathed his property, the deceased directed that his executors should cause some part of his bowels to be converted into fiddle-strings, that others should be sublimed into smelling-salts, and that the remainder of his body should be vitrified into lenses for optical purposes! He further added in a letter,—“the world may think this to be done in a spirit of singularity or whim,” but he expressed himself as having a mortal aversion to funeral pomp, and he wished his body to be converted to purposes useful to mankind. Sir H. Jenner, in giving judgment, held that insanity was not proved; the facts merely amounted to eccentricity, and on this ground he pronounced for the validity of the will. It was proved that the deceased had conducted his affairs with great shrewdness and ability; that he not only did not labour under imbecility of mind, but that he was treated as a person of indisputable capacity by those with whom he had to deal. The best rule to guide the court, the judge remarked, was the conduct of parties towards the deceased; and the acts of his relatives evinced no distrust of his sanity or capacity.

In this instance, the testamentary disposition was contrary to the usual order of succession, as it is in all cases of disputed wills; but there was no delusion accompanying it. The will was drawn up by the deceased himself, and bore evidence of a reasonable mind, notwithstanding the introduction of his absurd notions. It is proper to remark that the deceased had always been noted during life for his eccentric habits, and had actually consulted a physician upon the possibility of his body being devoted to chemical experiments after death.

The most difficult medico-legal questions connected with this subject are those which relate to responsibility for crimes on the part of persons labouring under *homicidal monomania*.

“It is not easy to convince a common observer that a man who enjoys the sound exercise of reason upon all subjects except one should not be considered accountable for any act he may perform, and be liable to punishment if it should be criminal; and it is still more difficult to convince one unacquainted with the subject, that a man who presents no appearance of intellectual aberration should be compelled to the commission of deeds which are not only criminal, but revolting to humanity, and which he himself laments when the anguish has been quieted by the fulfilment of the desire. The subject is one of very great difficulty, and it is not to be concealed that the existence of such

a disease as 'instinctive monomania' has been altogether denied. It has been called by a celebrated counsel a modern resource, which would be extremely convenient to snatch a criminal from the just severity of the laws, or to deprive a citizen of his liberty, and would soon convert our lunatic asylums into prisons." (p. 209.)

That those who have not considered the subject should find a difficulty in admitting this form of insanity is not at all surprising, although there must be an equal difficulty in allowing that the crime of murder should ever be committed without a motive by a reasonable being. The absence of all motive, and of any attempt to conceal the crime after its perpetration, are the chief characters of this kind of monomania according to Dr. Pagan. Homicide under the influence of ungovernable passion is not excused by law, yet here there cannot be said to be a motive, at least such a motive as usually incites a person to destroy another (*ira furor brevis*). The author thinks that in the case of passion there may also be no attempt to conceal the crime, but the passions are, at least in most cases, capable of being controlled. We put little stress on the first point (concealment), but the second is of more importance, yet the law here makes such allowance for the difficulty of controlling passion, as to reduce the crime from murder to manslaughter. In some cases there is a mixed condition of passion and insanity, arising from long indulgence or peculiarity of disposition, in which the fit of passion appears to be a state of temporary insanity, differing only from mania in its short duration, and being speedily followed by the return of reason and the exercise of the intellectual faculties. Some have called this *iracundia morbosa*. In persons labouring under this infirmity anger is rapidly changed, without the slightest reason, into absolute and uncontrollable fury. Evidence of this state is often given on trials for murder; but it would be difficult to produce a case in which the proof of it had led to the entire irresponsibility of the accused. The party is generally convicted of manslaughter.

The existence of homicidal monomania can only be decided by an appeal to facts. Allowing that it does exist, we must admit that he who labours under it should be held, to a certain extent, irresponsible for his acts. In all criminal cases, the test by which the jury have to try the state of mind of the prisoner is the following,—whether, at the time the act was committed, the prisoner was incapable of judging between right and wrong, and did not then know that he was committing an offence against the law of God and of nature. This is the rule commonly laid down by our judges as the spirit of English law; but we agree with the author in thinking that any test more fallacious in its general application could not be possibly conceived. Further, the law always presumes the competency of parties, and the question is presented to a jury upon the negative, which must be established on the behalf of the prisoner. In this respect there is a wide difference between the civil and criminal law;—if a person has once been found lunatic by a commission, all his civil acts are considered to be those of an insane person until his lunacy is legally revoked, or the clearest proof of a lucid interval is adduced: but if he have been guilty of any criminal act, the circumstance of his having been already found lunatic by a commission, or of his having been for years notoriously mad, will avail nothing: he is put

upon his trial, and the question of his insanity in the legal sense above mentioned, at or about the time of the act, must be again gone into. The criminal law presumes that every person arrived at the age of discretion is sane, and is accountable for his acts, unless the contrary appear. The legal proof of insanity does not here rest on the evidence of the existence of delusion, or even on the connexion of that delusion with the act itself, but on the incapacity of the party at the time to distinguish whether the act he was committing was criminal and contrary to the law of God and man. We do not complain of the law for thus jealously enquiring into the circumstances connected with the violent death of a human being, but we do complain of the setting up a false test for criminal responsibility, since the effect of this must be not only to add to the number of victims, by executing persons morally irresponsible, but to make punishment purely vindictive. It is notorious that insane patients often commit acts which they know to be wrong, and of the criminality of which they are perfectly aware. They have been known to murder others in order to receive the punishment of death from the hands of the law, and therefore they must have known that the act which they were perpetrating was an offence against the law of God and man. In short, the criminal character of the act has often been the sole motive for its commission. This fact, which is totally independent of the admission of the existence of such a state as homicidal monomania, appears to us to establish clearly that our criminal law is acting upon a dangerous error, that the test required for establishing criminal responsibility is founded upon false notions of the state of the faculties in insanity, and that thus many really insane persons must, by its enforcement, be put to death, without the law having the justification of preventing, by the terror of example, the perpetration of similar acts. But the error has a wider influence than this: it is, we believe, the main cause of such a state as instinctive homicidal madness being rejected as a plea in law. In this state the individual, as we know, is generally aware of what he is about; he knows that in killing another he is committing a crime, and if this is not admitted at once by his own confession, it is easily to be inferred from his general conduct. All we learn from him is, that he was ruled by an impulse which his will could not control, yet the law does not in any case admit this as an exculpatory plea, and it thereby denies the existence of such a state as diseased volition or diseased comparison. It appears to us that the true test for irresponsibility should be, not whether the individual knew that what he was doing was criminal, but whether he had sufficient power of control to govern his actions. It might be fairly asked, how is such a test to be applied, so as to ensure protection to society, and prevent injustice to those labouring under mental disease? We can only reply, that we must judge from circumstances, a practice now daily followed in the determination of the shades of guilt by which murder passes into manslaughter. The sole difference between these two crimes rests, in a large number of instances, upon the power of self-control in the accused party. This is always inferred from circumstances, such as the mode of attack, the presence or absence of reasonable motive, and the time which has elapsed during a quarrel before the fatal blow is struck. It cannot then be urged that we are here suggesting a novelty for a test of legal responsibility.

We must, however, take the liberty of observing that, whatever substitute be adopted, some alteration of the law is absolutely required. Many eminent law-writers advocate the rule now followed, because it prevents juries from being embarrassed by any technicalities respecting the import of the term insanity. It certainly has this advantage, and the only objection to it is that it does not go far enough: while it leaves many of the insane irresponsible, it does not leave all; it therefore operates unjustly. If insanity consisted, as is often vulgarly supposed, in a total absence of reason, and an unconsciousness of actions, this legal rule would be sufficiently correct; but a very slight practical acquaintance with the subject will show, that this view of the malady is only applicable to a few cases, and never ought to enter into any system of criminal jurisprudence.*

The mere proof of *delusion* in a criminal does not exculpate from crime. In 1834, a man was tried for shooting at another with intent to murder. The medical witness stated, in answer to evidence, that the prisoner had previously supposed he had seen an apparition, but this, in his view, was only a proof of great weakness of mind or intellect, and not of derangement. Here we see a distinction drawn by one who had evidently never thought of the subject prior to the examination. We offer no opinion on the responsibility of the party in this case, but it would have been curious to have seen, by a rigorous cross-examination, how the medical witness would have justified his statement.

It would be going too far to say that all persons who have experienced delusions should be held irresponsible for their acts. Where the ordinary motives for crime exist, with premeditation, precaution, and concealment, then we consider the interests of society would be best protected by the infliction of punishment. But is it absolutely necessary for the establishment of an exculpatory plea that the delusion should be connected with the act? Where there is this connexion, as where a man kills another under the false impression that he has sustained the severest injuries from him, then we think there can be no doubt of irresponsibility: this is one of the least difficult forms of homicidal madness to the medical jurist. The question, however, is not always so simple as this: a man who labours under many delusions may commit a crime, and yet by no process of reasoning can we establish the least connexion *in our minds* between the act and any one of these delusions. How is such a case to be disposed of? In defending Hatfield for shooting at the king, Lord Erskine argued, that to exempt from responsibility there must be a close connexion "between the delusion and the act,—the prisoner's act must be the immediate unqualified offspring of the disease." This doctrine is so inapplicable, that were it rigorously acted on few lunatics tried for murder would escape the punishment of death. Indeed, it is surprising

* Several cases have occurred of late years, which show that this legal doctrine cannot be always practically enforced. Jonathan Martin, the incendiary, was perfectly conscious that he was doing wrong when he set fire to York cathedral. He admitted that he was doing wrong, according to the law of man, but he had the command of God to do the act. This man was rational upon all other subjects. He was acquitted; and hence we must draw one of two inferences, either that he ought to have been hanged as a criminal, or the test of responsibility uniformly assumed by the law is wholly inadequate to the purposes of justice. Vide also the case of Rebecca Hodges, tried at Warwick in 1809.

that, in making the assertion, it did not occur to the mind of this excellent lawyer, that the act of an insane person might be strictly connected with his delusion, without our being able to discover the connexion, and that it must be the height of inconsistency to test the motives which govern the conduct of a lunatic by those which would guide a reasonable being.

This doctrine of Lord Erskine's has not, so far as we know, ever been acted upon. It would be easy to adduce cases, where persons have been acquitted on the ground of insanity in a charge of murder, notwithstanding the want of any apparent connexion between the delusion under which they laboured and the crime, and this even where the motive seemed to be revenge. On the other hand, it has been held by judges that, although the mental delusion might be connected with the crime, and actually stimulated the party to commit a murder in revenge for an imaginary injury, yet if he knew he had no right so to revenge himself, he would be criminally responsible. We hereby learn that in all these cases the existence of delusion and its connexion with a crime have less to do with the responsibility of a really insane person than his capacity to distinguish right from wrong at the time of its commission. This is a practical enforcement of the doctrine advocated by the attorney-general in Hatfield's case, in opposition to Lord Erskine,—a doctrine sanctioned by the authority of Lord Coke and Lord Hale, that "to exempt a man from crime, there must be a total deprivation of memory and understanding."

Dr. Pagan, with most medico-legal writers, argues that homicidal madness should not be admitted as a plea of exculpation, "except upon the clearest proof derived, in the majority of instances, from the absence of precaution in the mode of committing it, and of the usual criminal motives, conjoined with the positive proof of the existence of the disease."* (p. 214.) In another place he says: "In no case, in which a criminal motive can be discovered, perhaps, would the medical jurist be justified in giving an opinion that the person was irresponsible." (p. 210.) Then again, at page 233, we find him asserting, in commenting on a particular case, that "the presumed motive was altogether inadequate to account for murder." We have some doubt how far the mere absence of precaution in the commission of crime should be allowed to guide our judgment, since there are many instances in which sane criminals show great want of foresight and precaution, and others again in which those who are really insane display the greatest cunning; thus they will sometimes carry a weapon for weeks before they use it against their intended victim, and calculate the time and opportunity for destroying him with the greatest precision.†

The absence of the usual criminal motives is a matter of much greater importance; indeed, this is the only evidence of the existence of one class of cases of homicidal mania, namely, those in which "no trace of partial insanity can be detected, in which there is no hallucination, no delusion, no fixed idea, but in which the person is impelled by an irresistible impulse to shed blood, which he is altogether incapable of resisting by the exercise of a depraved or weakened volition, in which no motive for crime exists, in which no act, ulterior to the murder, is

* Hatfield's case, *contra*.

† Vide Hatfield's case.

performed, not even, perhaps, an attempt made to conceal it, or the individual's participation in it, and in which none of the usual incentives to crime can be detected." (p. 214.) Some writers have called this moral insanity, or instinctive homicidal mania (*mania sine delirio*), and have accumulated instances of fond parents murdering their children, husbands their wives, and servants their masters. The difficulty to the admission of such a state appears to us to consist in the fact that the insanity is pleaded for the crime only, that it did not exist before or after its perpetration, and that it may be thus converted to a specious means for totally exempting criminals from punishment. Sometimes murder is committed on a sudden and uncontrollable impulse, like suicide; but perhaps more generally, if we are to trust to the confessions of criminals, the idea of destruction has long dwelt in the mind, has been long resisted from a conviction of its unlawfulness, but finally, in a moment, it has triumphed. Dr. Conolly has observed,* that the degree to which this feeling admits of resistance is often a very important question. The law harshly judges of this power of control by the conduct of the individual before and after the perpetration of the act; but psychologists are well aware that no evidence may be derived from such an examination, to support the ordinary idea of the existence of insanity. The individual may have experienced the feeling, but have sufficiently mastered it to prevent it having the least influence on his general conduct.

The existence of such a state as instinctive homicidal madness is involved in the question, Whether a sane person is likely to destroy one to whom he is fondly attached, without the least criminal motive? We think not; and the perusal of the cases accumulated by Esquirol, Prichard, and others, and quoted by Dr. Pagan, appears to us strongly to bear out this view. The law asks,—Do they not know at the time that what they are doing is wrong? We reply, in many cases they do; but would suggest that the true question should be,—whether they have the power to resist the horrid impulse which leads to the perpetration of the crime? if they have, let them be convicted; if not, let them not be condemned as we should condemn a reasonable being. We must remark, however, that it is doubtful whether, in any case, there is an entire absence of motive; all we can say is, that the usual motives of revenge, robbery, or for the concealment of other crimes, are not apparent. The homicidal monomaniac is often induced to destroy his children to save them from want, or to convert them to angels, or his motive springs from some other extraordinary delusion. But it may happen that the person murdered was a stranger to the prisoner, and had given no provocation whatever; here, as in the former case, the only reason to suspect insanity might be the act itself. How would such a case be met by the law? The following instance will show: Soon after Bellingham's trial, a man was tried at Warwick, who rushed into a room where there were persons whom he had never seen before. He killed one with a knife which he carried, and gave another seven wounds. He then rushed out and ran into a river, brandishing the weapon with which he had inflicted the injury. Under the judge's directions the jury

* *Indications of Insanity*, p. 339.

negated the plea of insanity.* This seems to have been a case of homicidal madness, for there was no motive whatever for the act, and it is most probable the crime was committed under a delusion. There is a more difficult class of cases, where the crime is committed for a motive, which to a rational mind seems inadequate,—as where one man murders another for the sake of obtaining from his person an insignificant sum of money, or an article of little or no value. These cases are of continual occurrence: we do not see how the medical jurist can interfere with them, since it is impossible to define exactly the degree of adequacy in motives. If the criminals have used no reasonable effort to control these petty incentives to the commission of heinous crimes, they appear to us to become justly the subjects of temporal punishment.

The cases quoted by the author in illustration are chiefly derived from foreign sources; and we are glad to find by these, that the proof of premeditation and precaution, with a perfect consciousness of the criminality of the act committed, have not, in some parts of the continent, been deemed incompatible with the admission of insanity as a plea. But we should have liked to see more illustrations drawn from the practice of the English law, since they are extremely numerous. Scarcely a circuit passes without many such occurring; for the plea is perhaps one of the most frequent in trials for heinous crimes. Among many that have occurred within the last few years, we might point to that of Greensmith, who was tried on the Midland Circuit, in July, 1837, for the murder of four of his young children, as one well calculated to fix the attention of all English medical jurists. This man, who was of industrious habits, and an affectionate father, fell into distressed circumstances, and destroyed his children by strangling them, in order, as he said, that they might not be turned into the street. The idea only came to him on the night of his perpetrating the crime. He left the house and went to a neighbour's, but said nothing of the murder until he was apprehended the next day, and taken before the coroner, when he made a full confession. After he had destroyed two of them in bed, it appears he went down stairs, and remained some time. Thinking that he might as well suffer for all as for two, he returned to the bed-room, and destroyed the two whom he had left alive. He shook hands with them before he strangled them. Not one of the witnesses had ever observed the slightest indication of insanity about the prisoner. He made no defence, but several humane medical practitioners voluntarily came forward to depose that he was insane.

The surgeon of the gaol had observed that there were many appearances of derangement about him. He was feverish, complained of head-ach, and had been subject to disturbed sleep, and sudden starts, ever since the death of his wife. He spoke of the dreadful crime he had committed without the slightest excitement; and the witness was about to state the general conclusion at which he had arrived, when the judge (Mr. Justice Park) interfered, and said, that the witness must not state his opinion; it would be for the jury to draw their inference from the facts stated by him. In answer to a question, the witness said that he had heard enough of the evidence to satisfy him that the prisoner could not have committed such a crime as this, and be in a right state of mind.

* Prof. Amos.

The judge observed that was no ground to warrant such a conclusion. The question was, did the prisoner know right from wrong at the time, as every person might be said to be insane in some sense of the word, who committed a great crime. Dr. Blake, physician to the Nottingham lunatic asylum said he was satisfied that the prisoner laboured under a delusion of mind. His sister and grandmother had been under his care, the former for entertaining a similar delusion, namely, that of destroying herself and children. The judge declined receiving this evidence. He then summed up the law, as laid down in books with respect to what would constitute such a case of insanity, as would render a person irresponsible for his acts. The jury found the prisoner guilty, and sentence of death was passed on him. The prisoner displayed no emotion whatever during the proceedings. This unfortunate person would undoubtedly have been executed, had it not been for the active interference of Dr. Blake and others, who drew up a full representation of the facts, forwarded them to the secretary of state, and procured a respite on the ground of insanity.*

We have here selected one English case of recent occurrence, to illustrate the state of English jurisprudence in regard to the responsibility of the insane for crimes. In it too we have a complete history of homicidal monomania. We doubt whether any person who has attended to the subject of insanity could read the above case without feeling convinced that the prisoner had committed the act while labouring under a delusion; and that, upon the bare proof of the facts, he ought to have been held irresponsible as a murderer. Yet we see this was denied, because the prisoner was evidently conscious he was committing a criminal act. He killed his children in order, as he expressed it, that he might himself "suffer for it." We are surprised it did not occur to the learned judge who tried this case, that if the facts did not constitute a case of insanity according to the legal definitions, those definitions must involve some error, and were not adapted to the purposes of justice.

There are several points of importance in the above proceedings relative to the medical jurisprudence of insanity; and, as they may affect the duties of medical witnesses in future cases, we shall here briefly advert to them. The judge, it will be observed, would not allow the medical witness to state his opinion whether the prisoner was insane or

* As we should be sorry to misrepresent the views of the learned judge on a question of such importance, we subjoin a part of his charge to the jury, from a letter published on the subject by Dr. Blake:

"The physician (Dr. B.) who had stepped forward to urge the plea of insanity on behalf of the prisoner, had stated a doctrine very opposite to this," (alluding to Sir M. Hale's definition of criminal responsibility,) "and one which was altogether inadmissible in a court of justice; and which gave him some surprise, when he heard it advanced by a gentleman occupying so important a station in society. Nothing could be more contrary to law than to infer insanity from the very malignity and atrocity of the crime. It was true, that such crimes could never be committed by men who were in possession and control of a right reason and a proper mind; but it was his duty to inform the jury that the complete possession of reason was not essential to constitute the legal as more than the moral responsibility of man; it being merely necessary that the party should have sufficient knowledge and reason to discriminate between *right* and *wrong*."

A judicious notice of Dr. Blake's letter appeared some time since in a contemporary journal. (*Med. Chir. Rev.* vol. xxviii, p. 84.)

not. It has been ruled in the criminal law that a witness is at liberty to say whether such and such symptoms, proved by other witnesses, are in his judgment those of insanity or not; but some of the judges have held that he cannot be asked whether the prisoner is insane or not, and still less whether the act for which he is tried be an act of insanity. This is a point which it is considered must be decided by the jury alone. We cannot see the policy of this decision; why, for example, an individual above all others the best fitted to form an opinion in such a case should be restrained from expressing it. The jury may or may not coincide in the view taken by the witness; a circumstance which would depend upon the reasons assigned by him for his opinion, but why the prisoner should not have the benefit of this opinion it is difficult to understand. In an ordinary case of murder by wounding, it might as well be ruled that the witness is not to be asked whether the deceased died of the particular wound, but the jury must infer this from his evidence. It is also not a little curious that, in a civil case involving the question of the insanity of a party,—as before a commission, and on suits relative to disputed wills and marriage contracts, the medical witnesses are often expressly called upon to give their opinions on the state of mind of the party, and whether his acts were those of insanity. Is life of less value than property, that a medical opinion should be actually required in the one case and entirely rejected in the other?

A second point worthy of notice in this trial is that the judge refused to receive the act of the prisoner as furnishing any evidence of his insanity. Now as, in many instances of homicidal mania, there is nothing but the act itself indicative of insanity, so must we consider this as substantially rejecting a large number of cases from that protection which a humane system of jurisprudence is bound to afford. But why is a civil act taken to furnish evidence of insanity, while a criminal act is not? In judging of the validity of a will or contract, it has been repeatedly held by our best ecclesiastical judges that the act itself furnishes the best and sometimes the only evidence of the insanity of a party. There can, we think, be no doubt of the truth of this position, and we do not see why the rule should not be equally applicable in criminal cases.

The judge objected, it will be seen, to receive the evidence of Dr. Blake, as to the existence of insanity in other members of the prisoner's family. Here again we meet with what is represented as being an established rule of law, applied both to civil and criminal cases; namely, that proof of other members of the same family having decidedly been insane is inadmissible as evidence. If we can trust to the observations of the most experienced men in all countries, there is no doubt that, beyond all other diseases, insanity is hereditary. According to some, upwards of one half of the cases which occur are to be traced to an hereditary origin. With the admission of this well-ascertained medical fact, it seems inhuman to reject such collateral evidence, in obscure cases of suspected homicidal monomania; since, if any error be committed by its admission, it will certainly be on the side of mercy.*

Those who, like Dr. Pagan, require that cases of this kind should be

* In this instance there was not merely an hereditary tendency; but, as Dr. Blake has stated, there had been a perfect similarity of delusion in the prisoner's sister.

dealt with in a more humane and liberal spirit than we at present find manifested by our law, are well aware of the danger which might follow by too readily admitting a plea so easily set up and so difficult to disprove if once admitted. It is not of course imagined that individuals once proved to have committed such heinous crimes should be set free, for this would endanger the safety of society; all that we might expect is that their lives should be spared, and that they should be confined in asylums. This might by some be considered as a punishment which would not deter others from acting in the same way; but an objection of this sort applies to crimes committed by lunatics in general, and, although we could not thereby prevent others from committing murder, we should prevent the same individual from doing further mischief.

But murder is not the only case in which "a perfect consciousness of the quality of an act, and the power of resisting the impulse to commit it, independently of the usual passions, are not invariably combined." Incendiarism and theft have been considered by many medico-legal writers as now and then resulting from a monomaniacal propensity. The circumstances requiring investigation, in these instances, are the same:

"We must ascertain whether the person has previously been insane,—whether he had taken precautions to ensure the perpetration of the crime, and avoid detection,—whether these precautions were adopted before or after the act; and, above all, whether it seems to have been the consequence of the usual inducements to crime: these, with the positive evidence of the existence of delusion, or of some unusual and unnatural impulse, will lead us, in most instances, to a sound conclusion as to the responsibility of the individual for the act in question." (*Pagan*, p. 252.)

Cases of *dementia* form a frequent ground for disputing the validity of deeds; and here we meet with an additional difficulty; for persons in this state are easily subject to control, and are liable to be influenced by interested persons placed about them. The imbecility of age is often adduced as a ground for rendering a will invalid; but here the facts required to be proved are, that the mental weakness was such as either to render it impossible for the individual to know the nature of the act in which he was engaged, or to subject him to the improper control and interference of others. In these enquiries, it must be remembered that the powers of the mind may sometimes be suddenly restored, and the individual acquire a disposing capacity just before death. An attack of acute disease has been known to produce this effect in dementia. (*Pagan*, p. 266.)

Wills made *in extremis* are always properly regarded with suspicion, and many instances of their revocation might be adduced. It is generally impossible to obtain satisfactory medical evidence of the state of mind of the testator. In examining into the capacity of a person under these circumstances, we should avoid putting leading questions, namely, those which suggest the answer, yes or no. Thus, a dying man may hear a document read over, and affirm that it is agreeable to his wishes, without understanding its purport. It is not satisfactory, unless he himself dictates the provisions of the document, and is able to repeat them: if he does this, accurately, there is no doubt of his having a disposing mind. No general rules can be applied to these cases,—some persons retain the perfect enjoyment of their faculties to the last, even through a lingering disease; in others, where the disease affects the brain or nervous system,

as in fevers or acute diseases, which speedily cut short life, the intellectual powers are commonly obscured. To prevent fraud, one rule of law is uniformly acted on in all these cases, namely, where incapacity is alleged on the part of a testator, the evidence to establish it must be clear and distinct, or the objections to the document will be disallowed. We must regret that Dr. Pagan, although he admits this question is often one of the greatest difficulty to the medical jurist, has not produced some cases to illustrate the subject. Many such have come of late years before our courts, and there is scarcely one which does not furnish instruction and interesting matter for reflection. *Brevis via per exempla, longa per praecepta.*

Persons labouring under confirmed dementia are irresponsible for their acts. The only crime of which they are commonly guilty is theft. They seem to have an imperfect sense of right and wrong, and do not sufficiently distinguish between what belongs to themselves and others. They are notorious for hoarding up large quantities of useless articles, and laying their hands upon all kinds of objects, without regard to their quality or value. They seldom commit murder or any grave outrage, except in those instances where dementia alternates with epilepsy, and is succeeded by paroxysms of violent mania.

The remarks on *idiocy* and *imbecility* are sound and judicious. Imbecility is nothing more than a minor degree of idiocy; it is a condition in which there is "a limited manifestation of the intellectual and moral faculties, the consequence of imperfect organization, or in which the development of the mental powers has been prevented in consequence of some disease of the brain in the early periods of life, before education and experience had produced their proper results." (p. 288.)

Idiocy is a condition in which the medical jurist has little concern. The mind of the idiot never having become developed may be regarded as destitute of ideas; hence there can be no doubt of their utter incapacity for undertaking the social duties of life. Cases of imbecility, however, are among the most embarrassing which occur, since the individual is not so devoid of intellect as to be incapable of receiving instruction; and he may have attained enough knowledge to have discharged some of the duties of life, although in an imperfect manner. Cases of this kind have rarely come before a court of law without giving rise to the most conflicting statements among the medical witnesses; and we have no hesitation in saying that they have often reflected disgrace on the profession. This difference of opinion has not always depended upon different degrees of experience in the witnesses, for where opportunities of observation have been equal, it is by no means unusual to find diametrically opposite views expressed of the state of mind of a party. Dr. Pagan cites the case of David Yoolow as an instance of this kind. Our readers will find a full report of this interesting case in the Eleventh Number of this Journal (July, 1838). The attempt there made was to prove idiocy: the medical evidence clearly established imbecility in our view; but the proof of this state was not deemed sufficient in law. No notice is taken of the celebrated case of Miss Bagster, which, as we shall hereafter see, affords an instructive example of the sort of medical evidence which is delivered on lunacy commissions.

We cannot be surprised at the conflicting verdicts which are returned

on these enquiries when we meet with such conflicting medical evidence. One physician tests one faculty, another, another; each has his own definition of insanity, and each forms a different opinion of the state of mind of the subject of enquiry. What we must strongly condemn on these occasions is the narrow and restricted manner in which the examination of the alleged imbecile is conducted. The witnesses for the commission do not go to test the state of mind of the party, so much as to discover what they may deem proofs of insanity: those against the commission adopt the opposite line of conduct; and thus the medical witnesses become as much partisans in the suit as the counsel engaged for and against the lunatic. We do not wish to express a harsh judgment on these cases; but we confidently appeal to all who have closely attended to the medical evidence on commissions, whether a strong bias is not in general discoverable in it. Witnesses may differ in opinion from entertaining opposite views of the same question, each having his own standard of comparison: for, as it has been well remarked, our judgments are like our watches—none go just alike; yet each believes his own: but we are satisfied that the great cause of the evil is the appointment of medical witnesses by the parties themselves. We fully agree with the author in thinking that “a man, even unknown to himself, with the purest intentions and most perfect rectitude, insensibly leans to the side upon which he has been employed. He is disposed to find that party in the right, and draws conclusions too hastily from premises too narrow.” (p. 301.) There is often another cause for this difference in operation, which a medical jurist will do well to remember. Persons labouring under imbecility are soon irritated; they are easily persuaded that they are ill used and persecuted; and when they are questioned by parties, who are represented as their enemies, they lose their self-command, and are no longer able to answer questions which, under their ordinary state of composure of mind, they would reply to with perfect accuracy. (p. 302.)

We entirely dissent from the author's view, at least so far as English practice is concerned, that there is “a repugnance on the part of juries to interdict persons of decidedly weak intellect;” and we would refer among others to the case of *Miss Bagster*, as a direct proof of the contrary. This lady showed by her examination, and we learn the same facts from the medical evidence brought against her, that although weak in mind, she possessed a far greater degree of mental power than existed in the case of *Yoolow*. Yet she was found to be of unsound mind, while *Yoolow* was pronounced sane. We are obliged to declare, from the examination of such cases, that the manner in which the disposition of property will be affected by the verdict is as much looked to by the jury as the actual state of mind of the party.

It has been properly inferred that the different opinions expressed by medical men on these occasions cannot arise out of their evidence as *medical* practitioners; but that these are cases in which non-medical men and all persons of common sense must be equally capable of judging. The censure conveyed in this remark is but too well merited, and witnesses should reflect whether in the end this conduct may not lead to the total abandonment of medical evidence on commissions. Under the present system, practitioners are certainly placed in an embarrassing position. The party who summons them to examine the supposed imbecile

fully expects that the examiner will give an opinion favorable to his view; indeed, it is often looked upon as bought and paid for. Unless the medical witness firmly exerts his independence in this matter, he may be the means of inflicting irreparable injury. But there are many worldly inducements which may make him hesitate, and he who hesitates is lost. The obvious remedy is that the witnesses should be men of character, selected for their knowledge of the subject, and made as perfectly independent of either party as the commissioners themselves.

We cannot close these remarks without enforcing on the medical jurist the necessity for his conducting the examination of an alleged imbecile with a proper regard to all the circumstances of *age, society, education, and general conduct*. We must first learn what the party has been taught, what instruction he has received, and how far he has profited by his education. We have already observed that the questions put to test mental incapacity are sometimes of the most absurd character; and the inference deduced from the answers equally so. No one can be set down as an imbecile because he is ignorant of that which he has never had the opportunity or disposition to acquire. We have always been at a loss to understand on what principle the arithmetical test has been introduced on these occasions. Some are not capable of being taught arithmetic, others acquire it in different degrees, while some have a mental arithmetic, without being able to express it in figures. If the capacity to manage affairs rested solely upon a knowledge of arithmetic, we are satisfied that many now go free who ought to be put in custody. A girl of sixteen is asked to calculate the rate of interest in the funds upon a given sum, and because she cannot answer the question this is a proof of her imbecility and consequent incapacity to manage her affairs! We know that there have occasionally been put to alleged imbeciles questions in numbers which other medical witnesses for the same commission have not themselves been able to answer. In our opinion, the questions should always be confined to what there has been the opportunity or inclination to learn; or otherwise we might be continually confounding mere ignorance with imbecility. Perhaps the best test of mental capacity in these cases will be found in determining the degree to which the individual has shown himself capable of receiving instruction.

The criminal responsibility of imbeciles involves serious considerations, since, here more than in any other case, an erroneous verdict may be returned, and capital punishment unjustly inflicted. The shades of imbecility are so various that it is difficult to draw a line of demarcation between it and perfect sanity. The practice of our law leads, moreover, to the inference that an imbecile who has not sufficient capacity to manage his affairs or property, may still come within the legal pale of criminal responsibility, i. e. he may have a moral perception of right and wrong. This test we must condemn, as even less applicable in these cases than in homicidal madness; for we never can presume "that the moral sense is perfect when the intellect is weak, and has never been developed." (p. 305.) We have no means of ascertaining, even with the acknowledgment of the party, that he fully comprehends the meaning of these terms. The fear of punishment probably operates as the chief preventive to crime in these cases, and not the moral perception of the iniquity of the act. The same may be said of the sane criminal; but the difference

lies in the presence or absence of a power of self-control. This, which we presume to be present in the sane criminal, is absent in the imbecile. Our opinion, says the author, of the responsibility of a person of acknowledged imbecility, "will be formed from personal intercourse—from the history of his life—from the circumstances connected with the commission of the crime, rather than from abstract notions of what his perception of right and wrong may amount to, which it is nearly impossible, I think, to know." (p. 306.)

The degree of education received, the kind of instruction, and the progress made by him, are points which require attention. On the other hand, his knowledge of the criminal character of the act may be inferred from the manner in which the crime has been perpetrated; from the fact of precautions having been taken to ensure secrecy in its perpetration, and safety afterwards; from its having been committed to facilitate the perpetration of another crime; from his having invented an artful story to free himself from responsibility, and throw it upon another; all these are circumstances from which we may infer a moral perception; and in such cases the accused ought undoubtedly to be held responsible as a sane criminal.

Imbeciles, it is true, sometimes display great premeditation and precaution as well as criminal motives in their actions; here a conviction generally follows; but it is questionable whether it would not be sounder policy to substitute confinement, as Dr. Pagan observes, for a punishment which can make no moral impression.

From the manner in which the subject of insanity is usually studied, the medical witness must be careful of not falling into an error which has been more than once committed, namely, that of presuming that a criminal must be of sound mind, merely because his case cannot be arranged under any of the four great divisions of insanity. "These divisions are adopted for the classification of facts, and as a means of facilitating their study; but they cannot set limits to nature; and it is frequently a matter of no little difficulty to determine under what division of insanity a case should be classed." (p. 321.) In some instances we meet with characters which appertain to all the divisions.

The medico-legal relations of the *deaf and dumb* do not require much consideration. An uneducated deaf and dumb person is altogether irresponsible for any action, civil or criminal. A deaf and dumb girl was tried for the murder of her child at Glasgow. The trial was stopped on the objection of her counsel that the prisoner could not plead, for she did not know the meaning of guilty or not guilty. There was no doubt of her moral responsibility, for premeditation, precaution, and a criminal motive were apparent from the facts detailed. An educated deaf and dumb person, one who can be made to understand by signs, would undoubtedly be subject to trial, and might be held responsible according to the circumstances proved.

Under a similar limitation, a deaf and dumb person may act as a witness, or may contract matrimony, since his consent is valid and may be given by signs, provided there is an evident understanding of their meaning.

The last condition noticed by the author is that of *somnambulism* or sleep-walking, in which there is a power of exerting the muscles of loco-

motion, and performing many acts while the individual is completely deprived of his senses. Supposing that a person while in this state commits a crime, is he to be made responsible? Dr. Pagan, with other medical jurists, thinks not; but professes himself unable to suggest any means by which the reality of this state, at the moment of perpetration of the act, may be established. Admitting that the criminal action committed during sleep is one which has been premeditated while the individual was awake, we doubt whether we should be ever justified in inferring irresponsibility. In a case of this kind, a medical man might admit the possibility of the act being thus committed unconsciously; but the court would have other facts to guide it in its decision—as the previous relations of the parties, the presence or absence of motive, with many other circumstantial points, which might even render a medical opinion unnecessary.

“Murder has not unfrequently been committed in that half unconscious state at the moment of awakening from sleep—in the intermediate state between sleeping and waking.” (*Pagan*, p. 326.)

There are several cases of this kind on record, and it involves a serious question for the medical witness. A man may be awakened by a frightful dream, and, under the temporary persistence of the delusion, kill some one who is near him. It is certain that suicide is often thus committed. An individual will go to bed without the least idea of self-destruction, will suddenly awake and destroy himself. Very recently, an old lady, residing in London, awoke in the middle of the night, went down stairs, and threw herself into a cistern of water, where she was found drowned. Admitting, then, that suicide may be thus committed, we shall have no hesitation in believing that when the means are at hand, some such delusion may lead to the perpetration of murder. But the responsibility of a party will never rest upon the bare possibility of the occurrence of this state. Other facts will be sought for, and must be forthcoming, to show whether there existed a criminal consciousness of the act.

A person, awakened suddenly from a deep sleep by another approaching, may destroy life without being fully aware of what he is doing. Dr. Pagan thinks a person could not be held responsible under these circumstances; but we think no general opinion can be given on such cases.

The following occurred to our knowledge within the last few years: A pedlar, who was in the habit of walking about the country armed with a sword-stick, was awakened one evening, while lying asleep on the high road, by a man suddenly seizing him and shaking him by the shoulders. The man, who was walking by with some companions, had done this out of joke. The pedlar suddenly awoke, drew his sword, and stabbed the man, who soon afterwards died. He was tried for manslaughter. His irresponsibility was strongly urged by his counsel, on the ground that he could not have been conscious of his act in the half-waking state. This was strengthened by the opinion of the medical witness. He was, however, found guilty.

Such a state of course is easily feigned and with difficulty detected.

We here conclude our notice of Dr. Pagan's book: we need hardly say we strongly recommend it to our readers. The views which he takes

of the difficult questions which the medical jurisprudence of insanity involves are just, and consistent with the present state of knowledge. The work evinces throughout deep reflection, and a perfect knowledge of the subject on the part of the author.

2. We shall now proceed to offer some remarks on Dr. Ray's treatise, taking care to confine our observations to those points which may throw any new light upon the subjects already discussed.

The American writer commences with some preliminary views on the jurisprudence of insanity, and he adopts a tone of strong but well-merited censure in criticising the conflicting opinions of legal authorities in Great Britain and the United States. He justly refers the present crude notions which exist on the subject to the fact that the legal relations of the insane were laid down long before physicians had obtained any accurate notions respecting the state of insanity. Modern discoveries have been rejected as the innovations of theorists, and have been set aside on the old principle "*Omnis innovatio plus novitate perturbat, quam utilitate prodest.*" We believe him to be correct in stating that

"One reason why the criminal law of insanity has undergone so little improvement in England is probably that the accused, not being allowed counsel to speak in their defence, except in trials for high treason, the officers of government have always been at liberty to put their own construction on the law, and urge it on the jury as the only correct one, without being contradicted or gainsayed. Thus the old maxims have been repeated year after year, and, not being questioned, their correctness has remained undoubted both in and out of the legal profession. Can any one doubt that had those insane criminals who have been condemned within the last half century been defended by an *Erskine*, many of them would have been acquitted, and a great advance made in the law of insanity, that would have prevented some of those exhibitions of presumptuous ignorance which will one day be universally regarded with feelings of disgust and pity." (*Ray*, p. 25.)

We must here remark that prisoners in this country have been now for some time allowed counsel to conduct their defence in charges of felony; but they have it not always in their power to provide themselves with advocates of equal talent and ability with those employed by the crown to prosecute them.

The author takes much the same view of the legal test of responsibility that we have already taken in noticing Dr. Pagan's work. After asserting that the insane mind is not entirely deprived of the power of moral discernment of the good or evil tendency of actions, he makes the following sound observations:

"If this power of distinguishing right from wrong do really indicate soundness of mind, it may be justly complained that the question of its existence is never agitated in any but criminal cases, while it certainly should be whenever the rights and liberties of the insane are to be invaded. If it is proper to make those who possess this power responsible for their criminal acts, how unjust and absurd is it to deprive them of their liberty, and seclude them from their customary scenes and enjoyments, before they have violated a single human law. Undoubtedly this measure will [would?] be conducive to their good, by taking from them effectually the opportunity of injuring the persons or property of themselves or others; and so it would be for every other unprincipled and reckless individual who bids fair to be a pest to society. But if it is alleged that the latter are morally free, and therefore are personally free, till the commission

of some external act, it may be replied that the former on the hypothesis of the law, which makes moral freedom consist in the power of distinguishing right from wrong, have the same claim to immunity from personal restraint. This preposterous distinction between civil and criminal cases gives rise in practice to one of the most curious and startling inconsistencies that human legislation ever presented. While the mental impairment is yet slight, comparatively, and the patient is quiet and peaceable, the law considers him incapable of managing himself or his worldly affairs, and provides him with a guardian and a place in the wards of an hospital; but when the disorder has proceeded to such a height as to deprive the maniac of all moral restraint, and precipitate him on some deed of violence, he is to be considered most capable of perceiving moral distinctions, and consequently most responsible for his actions." (Ray, p. 31.)

It certainly does seem eminently absurd that one standard of insanity should be set up for civil and another for criminal cases; or that a man whose civil acts would be *ipso facto* invalid, should still be made answerable for a criminal act. We have already, however, expressed our opinion of the inconsistency of the law, the "*dictamen rationis*," as it is sometimes called.

We pass over the remarks relative to the fallacy of trusting entirely to the discovery of design and delusion in the conduct of an individual as tests for his responsibility; but we cannot avoid quoting a passage in which a popular error is ably analyzed and refuted. It was an axiom of Lord Hale's that all crime is the offspring of partial insanity:

"And the inference he meant should be drawn from it is that partial insanity furnishes no excuse for crime. It is a curious fact that many benevolent people, in their desire to palliate the sins of criminals, have inculcated the same principle for the purpose of drawing from it a very different inference. . . . Says the former, crime must be punished; but all crime proceeds from madness, therefore madness furnishes no exemption from punishment. Says the latter, madmen are not responsible for their criminal acts; but madness is the source of all crime, therefore madmen and criminals are equally irresponsible and exempt from punishment. Which of these two precious specimens of human subtlety can claim the triumph of absurdity it is not easy to imagine. Crime is not necessarily the result of madness, not even when perpetrated under the excitement of fierce and violent passions; in the true sense of the word it is never so, but is always actuated by motives; insufficient it may be, but still rational and definite motives. The misfortune which the criminal is going to avert, the interest which he is going to subserve, the revenge he is about to gratify, the insult or injury he is about to repay, are *real* injuries, and insults, and interests, however much they may be exaggerated, or however disproportionately small to the crime they provoke; and the ends to be obtained by the criminal act are real and have an appreciable value." (Ray, p. 48.)

He then proceeds to show that the causes which urge the insane to deeds of violence are generally illusory—the hallucination of a diseased brain, or they may act from no motive at all, but solely in obedience to a blind impulse, with no end to obtain or wish to gratify. Strong passions prevent calm deliberation, but do not destroy the power of self-control in a sane person; hence, in cases of this kind, the law reduces the offence to manslaughter, but still punishes the act as criminal. It is with regret we find, whenever the plea of insanity is urged in a criminal case, that our judges so frequently meet it by the observation that all crime is the result of insanity, more or less: the only clear inference from which observation is that all criminals, sane or insane, should either be let free or all should be punished. It is a virtual denial of the existence

of any perceptible difference in the motives or impulses which lead to the commission of crime. Dr. Ray considers that the law in the United States is as loose and vacillating as it is in this country; and ascribes it to the one being exactly modelled after the other. He proposes, as a remedy, that in criminal jurisprudence a rule should be laid down in which, to exempt from punishment, the criminal act should be proved to be connected with the mental unsoundness. (p. 60.) This would certainly partially assist in removing the legal quibbles which invest the subject; but we doubt whether the operation of such a rule would not exclude many who are insane from its benevolent effects. In a former part of this paper, reasons have been assigned to show that this test would operate unjustly: and we do not see why, if there be any alteration made in the criminal law, that that alteration should not be at once as extensive as the circumstances of the case absolutely require.

The author complains of the defective manner in which medical evidence is received, and establishes by arguments which we need not quote, that that evidence only should be required or received which is delivered by competent witnesses. (p. 56.) He has, however, endeavoured to illustrate his views by two unfortunate examples. He has trusted to Foderé for his account of an English case which is totally misrepresented by that author. In the case of *Fish* (not *Fischer*) *v. Palmer*, Dr. Denman's opinion was properly rejected by the court, not in consequence of the testimony of three ignorant non-professional persons, although their evidence related to matters of *fact*, but in consequence of its being opposed to the opinions of Drs. Babington and Haighton, men equally eminent, and to the rules of common sense and equity. When Dr. Ray has read this case, we think he will be inclined to alter his opinion.* The reference to John Hunter's evidence in Donellan's case is still more unfortunate. This was a question in toxicology, with which that eminent surgeon confessed he was but little acquainted. We have yet to learn that eminence in one department of the profession is to secure implicit belief for opinions expressed on any subject.

In treating of mental diseases, the author commences with imbecility and its legal consequences. He gives the five degrees of this state proposed by Hoffbauer, and thinks that they are not entirely devoid of utility. The divisions in a practical view appear to us useless and absurd; since, before we can assign a particular case to its proper division, we must have attained all that medically or legally we require to know concerning the state of mind of the party. The case of *Miss Bagster* (p. 82) does not furnish us with a favorable specimen of the author's powers of analysis. He comes to the conclusion that the verdict was correct, and that this lady was really imbecile to a degree requiring legal interference. A full report of this case has already appeared in a contemporary journal, (*Med. Gazette*, vol. x. p. 519,) and we know of none which shows a more dangerous use to which the machinery of the law may be put. This young lady inherited a large fortune. Her education had been much neglected, but nevertheless she does not appear to have been treated as one of unsound mind, nor was any question of her sanity raised until she had contracted a marriage disapproved of by

* An abstract of it will be found in No. XVII. of this Journal, p. 45, (January, 1840.)

her mother; by which marriage the control of her property would be affected. Seven medical witnesses, summoned to support the commission, deposed that she was of unsound mind: on the other side, the counsel called no witnesses: but the commissioners themselves summoned two men of eminence, who deposed that her incompetency to manage her affairs arose, not from unsoundness of mind, but from ignorance. She was ignorant of arithmetic which she had not been taught, nor could she give satisfactory answers respecting the expenses of housekeeping; for in these matters she had never been instructed. She was, in the opinion of Dr. Morison, capable of instruction, and gave one strong proof of sanity, namely, that she was aware of the deficiencies under which she laboured.

It is probable that, besides ignorance, there was some degree of weakness of mind about her; yet, taking the whole case, we must attribute the verdict of unsoundness not so much to mental infirmity as to incapacity, from want of instruction, to manage a large fortune. But if every wealthy young lady whose education had been much neglected, had her sanity tested on the same points as Miss Bagster, we are certain that many who are now free agents would be placed under interdiction.

Dr. Ray's opinion of this case has probably been formed from his having seen only a short and imperfect abstract of the proceedings. We differ from him in thinking that her not being capable of taking care of herself or property was a proof of the mental deficiency being constitutional. Upon such weak grounds as these many young persons of both sexes might be immediately placed under restraint and their property surrendered to the cupidity of relatives. All the points in Miss Bagster's case which tended to show her sanity, the author fritters away under the possibility that they may have been exceptions to the rule. Thus her self-control and the concealment of her prominent deficiencies are not set down to the exercise of a sane mind, but to the exceptional case of an imbecile being sometimes capable of displaying this power. Her answers to the examiners, he admits, were pertinent and properly delivered; but still, he says, this is consistent with the first degree of imbecility of Hoffbauer. Her capacity to receive instruction is not looked upon in any other light than as an exception, since some imbeciles are also susceptible of education. Her acknowledgment of her deficiencies, and her expressed wish not to be asked questions on subjects which she had never been taught, he does not notice. We would, after this, simply ask the author whether, upon the principles by which he here professes to judge of mental capacity, a large portion of society might not be pronounced insane, and interdicted from all civil functions? We can never assent to the dangerous doctrine that the bare incompetency to manage affairs is to be taken as a test of unsoundness of mind, without the most satisfactory enquiry being made into the cause of that incompetency. It was never intended by the law that the ignorant and uneducated should be classed with the insane, or that the property of wealthy minors should be protected at the expense of their civil liberty.*

* Two other points in this case are worthy of fixing our attention. 1. It is generally held in law to be a proper rule to give the benefit of any doubt to the party affected by the proceedings. In this case, there must assuredly have been much doubt, for the only two independent medical witnesses in the case, i.e. those summoned by the commis-

The author devotes some space to the characters of *mania*, which he divides into intellectual and moral, and these again are each subdivided into general and partial. The subject is well treated and illustrated by numerous cases, most of which are borrowed from French and German writers. We must refer to the work itself (p. 208) for an excellent summary of the main features of homicidal insanity,—the principal of which he considers to be an *irresistible motiveless impulse to destroy life*—as also for the means of forming a diagnosis between it and homicide, as it is perpetrated by a sane criminal. The circumstances connected with the civil disabilities of those labouring under the various forms of mania and under dementia are treated more at length than in Dr. Pagan's work, and the illustrations, chiefly from our ecclesiastical reports, are numerous and appositely selected. The chapters on the legal consequences of delirium and on lucid intervals are worthy of attention; and we think the author has acted wisely in separating the last subject from the general description of insanity. If we do not extract any of the remarks made on these points, it is simply because we have already fully discussed the questions to which they refer. We pass over the chapters on feigned insanity, suicide, and somnambulism, and come to those "of the Effect of Insanity on Evidence," and the "Legal Consequences of Drunkenness." These subjects are only cursorily noticed by Dr. Pagan.

It has often become a serious question in enquiries before coroners; whether a person labouring under insanity is competent to give evidence as a witness. When a death takes place in a lunatic asylum, and there is an allegation of ill-treatment, the truth of the charge can sometimes be proved or disproved only by evidence of this description. In confirmed mania or in dementia, it is impossible to admit the testimony of parties;—the slightest examination would at once show that the mind was incapable of combining or arranging in any consistent order the impressions which had been received through the senses. As a general principle, the insane, whatever be the form of the malady, are disqualified by law from appearing as witnesses in courts of justice, "their incompetency being *inferred* from their mental unsoundness." (p. 361.) It therefore lies with him who produces such persons as witnesses to show that there is reasonable ground for trusting to their statements. In partial insanity, competency is occasionally allowed, although it requires a great knowledge of the case and extreme caution to measure the witness's credibility. One serious objection to all such evidence is, that the mental impairment, even when slight, is often accompanied by a total indifference to truth or falsehood, and there is a tendency in the lunatic to misrepresent or exaggerate every circumstance which comes before them. We cannot agree with Dr. Ray that when the matter on which the lunatic testifies "is remote from the insane delusion which he entertains, and cannot very obviously come within the circle of its influence, it

sioners, Dr. Haslam and Dr. Morison, two men of great experience, thought that there was no ground for legal interdiction. Two jurors out of twenty-two thought the same, yet the benefit of the doubt was not given to this young lady. 2. All agree that if this case was one of insanity at all, it was one of imbecility. Now this is a condition which exists from birth or early infancy: the evidence did not show that there had been any change of character in Miss Bagster; on the contrary, it appears to us to establish that she was the same throughout. Yet singularly enough, the verdict of the jury dated her insanity only two years prior to the commission.

would be wrong to reject his testimony on the score of incompetency," (364) because it is not possible for us to determine the exact degree in which the witness's statements may be influenced by his delusion, or the relation between them. A better rule is this: when their statements are borne out by those of other witnesses and corroborated by circumstances, then we may trust to them. A jury would, however, always be guided by the result of their evidence: thus if it affected the life of a prisoner charged with a capital crime, notwithstanding its corroboration by circumstances, it would probably be rejected. A case establishing this is related by the author (p. 365).

Some doubt may arise as to the competency to give evidence, in aged persons labouring under incipient dementia, and such evidence is often required in reference to dates of birth, the existence of local customs, and the execution of wills and deeds. There is no fixed rule as to the admission of this kind of evidence, which sometimes involves to a great extent the rights of persons and the disposition of property. It has been remarked, however, of such persons, that they may have a distinct recollection of events which took place many years before, while their memory is not to be trusted with regard to recent occurrences. If an aged witness can remember other transactions about the same date as that on which he has to give evidence, then we have a strong presumption in favour of his competency.

In a previous part of this article we have slightly touched upon the effects of drunkenness, on the difference between mania and delirium tremens, and on the legal responsibility of persons labouring under the last-mentioned disease. It is now our purpose to complete this subject by considering the legal consequences of acts committed by persons while in a state of drunkenness. Passing over Hoffbauer's three stages, we may remark that jurists and legislators have differed widely as to the degree to which drunkards should be made responsible for their acts. When the mind is weakened by habitual drunkenness, then the law infers irresponsibility, unless it be made plainly to appear that the individual was, at the time of the act, endowed with consciousness and reason; but the question at present is, how far an ordinary fit of drunkenness creates irresponsibility.

Any deed or agreement made by a party while drunk is not invalidated by our law, except in the case where the intoxication has proceeded so far as to deprive him of all consciousness of what he is doing; and a court of justice will not interfere, unless the drunkenness were the result of collusion by others for the purposes of fraud. Thus if three or four persons were to combine to intoxicate another, and to marry him while in that state, a court would not hesitate to annul such a marriage on clear proof of the fact. The validity of a will or deed would rest upon similar principles. It is easy to perceive by this that the law makes two states of drunkenness: one where it has proceeded to but a slight extent, and where it is considered there is still a power of rational consent; another where it has proceeded so far that the individual has no consciousness of the transaction, and, therefore, can give no rational consent. The proof of this last state would vitiate all the acts of the party. Some have held that the proof of drunkenness, under any circumstances, should vitiate all acts. We must certainly look to the distinction drawn

by the law of the existence of a power of rational consent in the first stage, in the light of a punishment on the party, since, although we cannot deny consciousness, we must consider that the judgment is weakened under the excitement produced by intoxicating drinks. A man thus situated is not in a condition to judge clearly of the rationality of his acts.

Is the evidence of a drunken person, relative to acts committed on him while in a state of drunkenness, receivable in a court of law? This is a question very often raised, since persons, whether intoxicated by their own voluntary act or designedly by others, are often subject to robbery. In general, all such evidence is treated with the greatest suspicion, and unless corroborated by the testimony of others, or by circumstances, it is rejected. When the drunkenness is designedly produced by others, a very slight corroboration will often suffice to render it receivable. In this distinction we again see that voluntary drunkenness is visited as a punishment on the party.

A man is held responsible by law for a robbery committed by him while in a state of drunkenness; and a curious case has just been decided (March, 1840,) on the Norfolk circuit, in which one drunken man was charged with highway robbery on another man who was also drunk. The prosecutor admitted that he was not sober, but denied that he was drunk! The jury rejected his evidence, because it was entirely unsupported by circumstances, and acquitted the prisoner.

A confession made by a man while in a state of drunkenness is legally admissible as evidence against him or others, if corroborated by circumstances. This is a most important point in regard to the responsibility of drunkards; and a case which has recently occurred leaves the English law undoubted upon this point. A man confessed while drunk that he had committed a robbery and murder, which had taken place some time before, but of which he had not been suspected. He mentioned the part of his cottage where the property of the murdered person had been concealed by him, and the whole of the circumstances of the murder. The property was found as he had described, and the case was clearly brought home to him, chiefly by collateral evidence from his own confession. He was convicted.

When homicide is committed by a man in a state of drunkenness, this is held to be no excuse for the crime; on the contrary, from the dictum of Lord Coke, the English law would regard it as matter of aggravation. The common law on the subject, as expounded by that great authority, is that "a drunkard, who is *voluntarius demon*, hath no privilege thereby, whatever ill or hurt he doeth, his drunkenness doth aggravate it." Practically speaking, in the present day, while drunkenness is not allowed by our judges as an exculpatory plea, it is not regarded as a source of aggravation. In no case is it, if voluntary, admitted as a ground of irresponsibility, even although the party might not have contemplated the crime when sober. Indeed, some judges have taken so rigorous a view of the case, that they have not even admitted the plea of exculpation when the crime was committed in a state of frenzy from *habitual drunkenness*. This, however, is not the general interpretation of the law, although, as we have before remarked, we do not see why, if responsibility is diminished in one case it should not be in the other; since, morally speaking, there can be no difference in the criminality of the act. Although

it would be a dangerous principle to exempt men from responsibility for crimes committed in a state of intoxication, yet, as the reasoning faculties are weakened, and the power of self-control is much impaired, it seems harsh in any law to punish such persons in the same way as criminals who enjoy their faculties, and have the power of controlling their feelings. The late Sir James Mackintosh judiciously remarked, in relation to this question, that as the example of punishment does not influence the man who is drunk any more than one who is mad, it is plain that to hang a man for what he does under such circumstances is to make drunkenness, when followed by an accidental consequence, a capital offence. His execution will not deter drunkards from murder; if it operate in any way, it can only deter men who are sober from drunkenness. The following instance occurred to him while he was officiating as a judge in India. An Irish artillery-man, in a violent fit of drunkenness, wrested a sword from the hands of a comrade, ran with it two or three miles on the road, and at last killed a poor old, unarmed, and unoffending seapoy of police. There was nothing to extenuate the crime, except the drunkenness; the prisoner was respited. This case so perfectly resembles one of homicidal mania, in the want of premeditation, precaution, concealment, and the absence of motive, that if ever that form of insanity were allowed to exempt from capital punishment, there was an equally strong reason for exemption in this instance. We cannot assent to the justice of the view, that the drunkenness being a voluntary act, and the homicidal mania having an involuntary origin, the cases are different; because, in the first place, this is virtually equal to visiting drunkenness with capital punishment, and, secondly, it is looking to the cause and not to the fact of the derangement of the mental powers. Supposing, as Dr. Ray has suggested, an homicidal monomaniac has brought on his destructive impulse by a voluntary attendance at exciting religious or political meetings, would the law visit a crime, committed by him in this state, with greater severity than that committed by another whose homicidal impulse spontaneously attacked him? If drunkenness is never to be admitted as an exculpatory plea on such a ground, then, in common justice, wherever insanity is pleaded for crime, the court ought, before granting it, to be satisfied that the individual has not brought on or aggravated his condition by his original misconduct. Such a doctrine is wholly untenable; for in the eye of the law exemption exists where there is a loss of power to distinguish between right and wrong, and in the view of the psychologist that exemption should be extended to all cases where there is a manifest loss of power of self-control. Neither in a moral nor in an equitable light is there any reason for distinguishing crimes committed during drunkenness from those perpetrated in the state of insanity; the plea of irresponsibility should be governed by the same principles in the two cases, and imprisonment substituted for capital punishment.

We do not know that we can add to these remarks by quoting cases which, unhappily in England, are too frequent; but we could point to several in which the severe penalty of death has, in our opinion, been most unjustly inflicted. We sincerely hope that the time is not far distant when a more enlightened view of this question will be taken, when it will not be allowed to rest on the individual opinions of judges, but will be fixed by rules of justice and humanity.

There is a class of cases differing slightly from those above considered, in which persons have sustained injuries to the head, as often happens with soldiers and sailors, where drunkenness, even when existing to a slight extent, produces sometimes temporary insanity, and leaves the mind in possession of its habitual sanity when the drunken fit is over. The law does not appear to draw any distinction between this state and ordinary drunkenness, although juries occasionally show, by their verdicts, that some difference ought to be made. Such persons certainly ought not to undergo the same punishment as sane criminals, unless the crime be accompanied by many circumstances of aggravation, and the plea rest rather upon suspicion than upon proof.

The work closes with a chapter on Interdiction and Restraint, which are not necessarily dependent on each other—interdiction being confined to the deprivation of the person of his civil rights. We shall not follow the author in his account of the circumstances which would justify interdiction in the various forms of insanity; but he appears to us to have unconsciously involved himself in some contradictions. At p. 412 we find him asserting that the accurate test of capacity, in a person labouring under imbecility, is the manner in which he has *already* managed his affairs; but this test is wholly inapplicable to those instances in which, from want of instruction, neglect, or the infancy of the party, he has never learned the method of managing property. The dishonest guardians of wealthy minors might take advantage of this principle to prevent their wards from ever acquiring a control over their estates. He complains of the facility with which interdiction is granted in Great Britain; but forgetting that he himself has justified this practice in the case of Miss Bagster—in our view one of the most disgraceful in modern times—we find him saying:

“One finds it difficult to believe on what slight grounds interdiction is there (in Great Britain) every day procured—a measure that, with the ostensible purpose of protecting the interests of the insane party, is too often in reality designed to promote the selfish views of relatives and friends. A kind and degree of mental impairment that has never obscured the patient’s knowledge of his relative situation, never altered his disposition to be kind and useful to those around him, never weakened his enjoyment of social pleasures, and never affected his capacity to manage his concerns with his usual prudence, has been repeatedly deemed a sufficient reason for depriving him of the use and enjoyment of his own property, and subjecting him to all the disabilities which the law can impose.” (*Ray*, p. 414.)

He justifies this censure by a reference to the celebrated case of *Davies*, the teadealer, and pronounces him to have been sane because he could manage his affairs—i. e. buy and sell. In our opinion there were far greater evidences of insanity about the general conduct and habits of this gentleman—to which in other parts of the treatise (p. 81) Dr. Ray directs us to look for proofs of imbecility—than about Miss Bagster; and, although it is admitted that Mr. *Davies* bought and sold and managed his affairs with ordinary care, we cannot understand why this “commercial test” should be applied to any young lady whose age, position in society, and future prospects must have made such a mode of examination a fruitless mockery. Yet it was chiefly upon this ground she was interdicted; and in spite of the above judgment, we find Dr. Ray contending in her case, without regard to her youth or want of education, that the

power of self-control, the appropriate answers returned to questions, and the capacity to receive instruction, were no evidences of sanity, but conditions of the mental faculties occasionally met with in imbeciles! We agree with him in condemning the English practice; but there can be little hope of improvement so long as experienced physicians like himself are led to advocate interdiction upon such weak and untenable grounds. The severe censure which he has passed upon the medical witnesses in Davies's case (p. 418) must, to a certain extent, recoil upon himself.

Notwithstanding there are many points in which we have taken leave to differ from Dr. Ray, we must do him the justice to assert that he has on the whole well treated his subject. His views are generally sound and practical, and display considerable acquaintance with some of the most obscure problems of psychology. His language is occasionally rather vehement,* but we believe this has arisen from a sincere wish to bring the jurisprudence of England and America, relative to the insane, up to a humane and scientific standard.

3. The third work on our list, by M. Cazauvieilh, professes to treat of *Suicide, Mental Alienation, and Criminal Offences*; but it embraces such a variety of subjects, and these are so loosely connected with each other, that we are quite at a loss how to characterize it. The medical jurisprudence of perforations of the stomach, drowning, hanging, and strangulation, are successively discussed; and to these we find appended the Statistics of Suicide, with the author's views of the criminal responsibility of the insane. Many cases of suicide are detailed, with an account of the post-mortem appearances, internally and externally. There is much industry displayed in the collection of these, but we have some difficulty in finding any facts which throw light upon the subject; for most of the appearances are evidently wholly unconnected with the state of suicide. The author has adopted the idea that *induration* of the cerebral substance is one of the most marked morbid changes, but varying in degree, according to whether the suicidal malady has been of an acute or chronic character. Whether this induration is a primary or secondary consequence of the malady he is unable to say; but he thinks it useless to attempt to dive further into the nature of the proximate cause. (p. 187.) Unfortunately for this hypothesis, out of seventeen inspections, induration was met with only in seven. In four cases out of the whole number the brain was not examined; but this would leave six cases in which the alleged morbid character was wanting. The author accounts for this objection to his view, by supposing either that the suicidal disposition had not existed long enough to harden the encephalon, or the brain was affected sympathetically by the other viscera, which were in a state of chronic disease. We prefer considering that the connexion between cerebral induration and a suicidal disposition was not made out.

He finds statistically that suicides underwent an annual increase in France from 1827 to 1835, except in 1830. The deficiency in the year 1830 he accounts for by supposing either that men's minds were directed by political events to other subjects or that there was some mistake in

* Vide pp. 48, 25, and elsewhere.

the tables. The first reason is altogether contrary to experience, since, as Dr. Cazauvieilh ought to know, suicides and cases of insanity are generally much increased by political changes. The yearly number of suicides in France amounts to 2000. (p. 3.)

Most of the author's statistical details are of a local character, so that they would only interest a French reader.

The last portion of the volume is devoted to the subject of homicidal madness. In this the author chiefly follows Georget. The remarks contain nothing new, but on the whole, the circumstances which should regulate responsibility are fairly detailed. There is a certain diffuseness of style, with a disposition to fine writing, which often renders the author's meaning obscure. The work is closed by an account of the treatment of insanity, with a tendency to suicide; but his ideas on this subject seem to us vague and unfitted for practical application.

4. The object of the *Barrister*, in his Letter on the *Law of Lunacy*, is to show that the present system of consigning alleged lunatics to asylums by medical certificates is dangerous to the liberty of the subject. But he appears to us to take a most narrow and illiberal view of the question. Indeed, we may consider his pamphlet as a direct attack on the members of the medical profession. Thus at p. 9 we find him insinuating that some surgeons from their poverty might be bought over to sign "the fatal document" by the bribes of avaricious relatives. Although abuses have taken place, we do not believe there ever existed any ground for such an imputation as this; and we are quite satisfied that in the present day, if no other principle restrained a man from granting a certificate improperly, the certainty of detection would deter him. He proposes that instead of this power being vested in medical practitioners it should be intrusted to the decision of a jury of twelve men, under the superintendence of a county coroner, to act as judge, the case being supported and defended by the technical ability of any number of counsel. If such a scheme as this were brought into operation, we fear there would be no end to litigation and expense. One half of the alleged lunatic's estate would go to settle whether he should be confined, and the other half, under a commission, to determine whether or not he was a fit subject for interdiction. While we admit with the "barrister" that the present system of allowing men unacquainted with the subject of insanity to sign these certificates is a highly unwarrantable practice, we think the whole of the grievance would be removed by simply restricting the power to those who had made this subject a special study.

The author thinks that commissions "*de lunatico inquirendo*," might be continued on their present footing, as his scheme would not interfere with them. This satisfies us that he has taken a very partial view of the law of lunacy. In each of these commissions, we find officiating generally three commissioners, from *nineteen* to *twenty-three* jurors, the sheriff and his officers, counsel on both sides, an unlimited number of witnesses, while the sittings are often protracted to twelve or fourteen days—and all this display of legal machinery is at the expense of the lunatic or his friends. The cost of such a commission often makes the most serious inroad into a lunatic's estate; and, after all, are the results of these protracted and expensive proceedings proportionately satis-

factory? We would refer for an answer to this question to the conflicting verdicts in the cases of Mr. Davies, Miss Bagster, and many others.

A little reflection will show, that the question for the commission to solve might be decided with as much certainty, and with infinitely less expense to the parties, by doing away with one half of the legal functionaries, and reducing the number of the jury and witnesses within a reasonable limit. These commissions are only suited to the wealthy classes; and we often find, the larger the fortune at stake, the longer the proceedings are protracted, so that they afford little or no protection to the middling and poorer ranks of society. It may be plausibly urged, that in a question affecting the disposition of a large property, delay is necessary for a safe decision; but we deny the inference in this case, and point to the numerous instances in our courts, where *one* judge and *twelve* jurors, at infinitely less expense, are deemed able, not merely to decide questions involving to a far greater extent the rights of persons, but to determine, sometimes in a few minutes, whether an alleged lunatic is responsible to the law for a crime which may affect his life! Now it is certain that injustice must be done to individuals in one of these cases, and we incline to think that the injustice is on the side of these expensive and protracted commissions.

With such facts before us, we must suppose that there was either a want of knowledge or a want of candour on the part of the "barrister" when addressing the lord chancellor on the "present state of the law of lunacy," in not denouncing these commissions as producing grievances of much greater magnitude than that of which he complains. If the liberty of the subject should ever be infringed, as he supposes, there is an ample remedy; but, so far as we know, there are no means of preventing the enormous pecuniary loss which a lunatic must sustain in order to receive the protection of the law!

5. Nearly simultaneously with the English and American works already noticed, we find appearing in France the more elaborate treatise of M. Marc on the same subject. We shall take advantage of this circumstance to compare the views of this distinguished writer on the medical jurisprudence of insanity with those detailed in the preceding part of this article. At the same time, with a due regard to the space which our pages will afford, we shall rather make selections capable of furnishing additional illustration than go over the same ground again. As our journal is chiefly addressed to English readers, we have preferred taking English works for our guides, since it is to these that the British practitioner will chiefly look for practical assistance in these difficult enquiries.*

The treatise, as we have already remarked, is on a much more extended scale than those of Drs. Pagan and Ray, and the subjects are treated in a somewhat different order. In the first volume we find discussed: medical competency—moral liberty—hallucinations and illu-

* It is with regret we find, from a note attached to the preface, that the author died suddenly of apoplexy on the 12th January last, immediately after completing the work. A short account of his labours is appended to it, which show that medical jurisprudence is much indebted to him.

sions—general remarks on insanity, and the medico-legal relations of idiocy, imbecility, and mania. It will be seen by this that the author adopts the divisions of Pinel and Esquirol. In the second volume the subjects of homicidal and suicidal madness, erotomania, demonomania, kleptomania (stealing), pyromania (incendiarism), dementia, temporary insanity, drunkenness (dipsomania), and, lastly, the civil relations of insanity are successively considered. M. Marc has not been sparing of illustrations, some of which he borrows from Esquirol and other sources, but many of them are founded on personal observation; among these last, we recognize some as having already appeared in detached essays, or in the numbers of the *Annales d'Hygiène*. The author has adopted in this respect a somewhat novel plan, namely, in many instances that of inserting at full length the whole of the legal proceedings, so that the cases thereby make up a large portion of the bulk of these volumes. In his preface he apologizes for this, and thinks that had he merely given abstracts of them, their authenticity would have been diminished. We do not quite agree with this view, since much must be necessarily published which can throw no light on the medical part of a case, and which will only serve to swell out a volume to an unwieldy size. Had M. Marc pursued the usual plan, we are certain that his name would have guaranteed the authenticity of his cases.

The question of "medical competency" will not detain us. The author expends a great deal of argument in refuting the views of those who wish to place insanity under the jurisdiction of metaphysicians and lawyers; and he shows a praiseworthy zeal in insisting that well-informed members of the medical profession alone are fitted to examine and report upon all cases of mental alienation. At the same time he admits that the subject is one which should certainly claim the attention of jurists, for whether they act as accusers, judges, or defenders, they will find that a knowledge of it will materially aid their judgment, and enable them to perform their duties more efficiently.

Among other cases to illustrate the absolute necessity for medical interference, he brings forward that of Bernard Schimaizig, who was tried for the murder of his wife, but acquitted on the ground that the act had been performed involuntarily, and while he was labouring under a delusion in a half-sleeping and half-waking state. (p. 56.) The investigation required to determine the responsibility of this man rested purely upon medical, not on legal or metaphysical principles.

"No case," observes the author, "offers deeper interest than that in which one is compelled to choose between the two extremes, of *entire irresponsibility* or the *greatest criminality*; no case more complex, or standing in greater need of philosophical illustration, than where the act is certain, but its moral consequences are disputable; where the ordinary means of proof, by witnesses, reports, or confessions, avail nothing, but we are obliged to have recourse to a species of artificial proof, formed of many minute circumstances, general principles, observations, and even probabilities." (*Marc*, p. 66.)

Our impression is that this "argumentum ad judicium" has become in the present day supererogatory. We have never heard the shadow of an argument for the subject of insanity being taken out of the hands of the profession; and we are quite certain if the advocates of this view

were temporarily successful in their efforts, the mischief which would result would soon cause the privilege to revert to its members.

The chapter on *moral liberty* is deeply interesting. In the author's opinion, the ground for exempting the insane from legal responsibility is, that their acts are *involuntary*. This leads him to speak of volition, which he defines to be "a faculty producing, directing, preventing, or modifying the physical and moral acts which are submitted to it." Again, "This normal state of the will constitutes moral liberty or free judgment. The being in whom this faculty is diseased becomes thereby incapable of controlling his actions, and may be classed among the insane." (p. 85.) The essence of insanity, according to this, would consist in what some physiologists have termed a diseased or paralysed volition. The author is evidently aware that this doctrine is not free from objection, for we find him shortly afterwards admitting that it would become a matter of great difficulty to apply it as a test of criminal responsibility. (p. 121.) Volition is not necessarily or equally impaired in all cases of insanity; while, on the other hand, it is often considerably impaired under the effects of extreme passion. Besides, in what difficult and imperceptible degrees does this power of the will exist among the sane? The chapter is concluded with an account of the various passions, and of the circumstances which would lead us to determine whether a particular act had been committed with or without the presence of moral liberty in the individual. The author's views here are so generalized, that we find it impossible to condense them. We must therefore refer our readers to the work itself.

Hallucinations and *illusions* are often confounded by those who treat of insanity.

"Hallucinations are those sensations which are supposed by the patient to be produced by external impressions, although no material object acts upon the senses. Illusions, on the other hand, are the results of a material action on the perceptive faculty, although the object is falsely perceived. When a man fancies he hears voices speaking to him while there is the most profound silence, he labours under a hallucination. When another imagines that his ordinary food has an earthy or metallic taste, this is an illusion." (*Marc*, p. 174.)

Although hallucinations may exist without any decided mental disorder, besides that requisite for their production, yet they may give rise to conceptions bordering on insanity. These last may also excite hallucinations without our being able to determine the priority of either state. Hallucinations and illusions are very frequently combined in insanity. (p. 181.) In two thirds of all cases the hallucinations are confined to the sense of hearing. The sense of vision is not so often affected, if we except the state of sanity in which, if there be hallucinations, this is the sense through which they chiefly appear to operate. Considering them as distinct from illusions, to which the eye more than the other senses is subject, there are few persons who have not experienced hallucinations of vision. In weak and superstitious minds, these false images have been mistaken for real apparitions. (p. 188.)

It must not be supposed that in insanity these hallucinations are confined to a single sense. The eye and the ear are often simultaneously affected. Illusions are not merely produced by the external senses; they

often accompany internal sensations, and the character of the delusion in the insane is considerably modified by them. Illusions are sometimes met with in the sane; but when they are habitual, more or less persistent, and are not under the control of the reflective faculties, they may produce or complicate the state of insanity, giving rise to the most wild and unconnected ideas. Although hallucinations and illusions are main features of insanity, they are rarely met with in cases of idiocy and imbecility; sometimes in dementia, most frequently, however, in monomania and mania, especially in the paroxysms of the last-mentioned state.

A good deal has been already said respecting the connexion of the acts of lunatics with the delusions under which they labour; and we have endeavoured to show, that to require it to be proved as a necessary ground of irresponsibility, is absurd. We cannot, in all instances, determine any such connexion from the language or conduct of the insane. M. Marc mentions the case of a man who for many years had been in the habit of licking the walls of the apartment with his tongue, until he had actually worn away the plaster. No one could imagine what was the cause of this perseverance in so painful and disgusting a habit, until one day in the author's presence he confessed, that he tasted and smelt the most delicious fruit on the walls. The discovery of this connexion must be often the result of pure accident; but there is no doubt that, wherever the acts of a lunatic are very unusual and strange, they depend on the presence of some hallucination or illusion. (p. 195.)

In treating of the general forms of insanity, the author commences with idiocy and imbecility. He very properly condemns Hoffbauer's divisions of the latter state as hypothetical subtleties, totally inapplicable to the practice of legal medicine, an opinion fully justified by several cases related in the subsequent pages. Idiocy being a congenital affection, and imbecility showing itself only in the first periods of life, neither state can appear suddenly; a fact important to bear in mind in cases of feigned insanity. Pinel, it is true, speaks of these conditions being suddenly produced by violent emotions; but his description of them coincides with what is now more generally termed dementia.

M. Marc laments, with Drs. Pagan and Ray, that jurists and legislators have shown such violent opposition to the admission of homicidal monomania as an exculpatory plea, notwithstanding the overwhelming evidence of its existence accumulated by experienced physicians of all countries. But he says the objections to this doctrine do not arise simply from prejudice on the part of magistrates: "In applying their views with too little reserve, physicians have themselves contributed to retard their reception. It is with new doctrines as with new discoveries, however true or important they may be, no greater injury can be done to them than by the endeavouring to carry them too far. Under these circumstances, one (false) application of them will diminish their value, and create distrust of their reality." (p. 229.)

There can be no doubt that to come forward with a plea of insanity for every criminal, must lead to the rejection of that plea, where it is deservedly made. In this respect, the writings of Georget have done much mischief; for it has by a reaction, thrown the whole doctrine into disrepute with French jurists. We may observe here, that some prac-

tioners, with more humanity than discretion, are in this country occasionally betrayed into a similar fault; for evidence has been given of the existence of insanity in criminals where there was not the least reason to suspect it, and there was no circumstance to mitigate the crime.

But there is another point on which medical witnesses are not sufficiently cautious, and that is, they make themselves advocates instead of witnesses; in which case they necessarily incur the risk of taking upon themselves the responsibility of a bad cause. Marc's observations apply more to criminal cases in France; but it is chiefly in civil suits in this country that we discover this most degrading bias in medical evidence. The author is right in contending that the witness, in giving his opinion on the state of mind of a party, "should place himself between the accusation and defence; he should wholly forget whether his opinion was demanded by the prosecutor or the prosecuted." (p. 231.) This is expecting almost too much from human nature; but it is nevertheless a desirable standard for the witness to endeavour to attain. We have already expressed our opinion strongly on this subject. The evil must continue in all the civil proceedings of this country, so long as parties are allowed to *retain* their own medical witnesses. Thus we see that in all cases of difficulty on commissions, medical opinions neutralize each other.

M. Marc thinks that, on the whole, French jurists are beginning to take a more liberal view of this question. Medical witnesses of experience are now frequently consulted, and greater care bestowed on the examination of the case (p. 238.) He admits two kinds of homicidal monomania: the one "*instinctive*," the other "*reasoning*." "The first incites the person, owing to a diseased volition, to instinctive automatic acts, not preceded by any reasoning on the subject; the second induces acts which are the manifest result of an association of ideas." (p. 244.) The first or instinctive state, in a medico-legal view, is much more difficult to establish than the other. Cases illustrative of these conditions are quoted from Mende.

Dementia, it is well known, may appear suddenly from violent emotions. The following is a singular illustration:

"During the republic, an artilleryman proposed to the Council of Public Safety a new species of cannon, which was to have the most deadly effects in war. A day was appointed for the trial of it at Mendon, and Robespierre wrote a letter to the inventor in such flattering language, that the poor man became motionless on reading it, and was conveyed to the Bicêtre in a state of complete idiocy (dementia)." (Marc, p. 269.)

In dementia the powers of the mind are destroyed, and there is something fearful in the thought that what it may have taken many years to build up may be thus annihilated in a moment by a strong emotion.

The subject of feigned insanity requires no further notice, since the means proposed by the author for its detection are the same as those which we have already detailed. A difficulty might occur in distinguishing these cases, from the fact that the forms of insanity are often mixed; but, says M. Marc, "these complications are only exceptions, and we may lay down the rule that when insanity is real, its characters do not differ materially from those of each of its principal varieties, with which we ought always to compare the symptoms met with in a supposed case."

(p. 276.) The causes of insanity, and the circumstances which modify its accession and duration, are amply detailed and illustrated. We may say the same also of the diagnosis and special characters of its various forms, as well as of the circumstances involving responsibility in the deaf and dumb. Some of the cases in illustration are unusually prolix, that of Gilbert, for example, with which the volume closes, occupies no less than forty-eight pages! We think this, with others, would have admitted of judicious abbreviation.

The second volume commences with an account of the characters of homicidal and suicidal madness, the materials for which, the author admits, he has chiefly borrowed from Esquirol. The illustrations are numerous: among them we find the case of Henriette Cornier, the publication of which, some years since, first established M. Marc's reputation as a medical jurist. We find nothing in these chapters to add to what we have elsewhere said on these subjects. In regard to suicide, we learn that the legal customs of France and England are different. In France the enquiry is limited to whether the act has really been one of suicide or not. In England it is thought necessary, in addition, to enquire into the state of mind of the deceased, in order, if a verdict of insanity should not be returned, to punish his surviving relations for the act by a forfeiture of his property! This enquiry is a mere matter of form, for neither coroners nor their juries are fitted, in the absence of good medical evidence, to pronounce a verdict on such a point. It is remarkable, however, that in cases of unquestionable suicidal monomania, English juries generally return a verdict of *felo de se* (Steinberg's case); and where there is every ground for supposing that the individual possessed reason until the last, they commonly pronounce a verdict of insanity. The author, although he avoids the question, does not regard suicide as a necessary proof of insanity. (p. 169.) The previous state of the individual—the method by which he has destroyed himself—and the motives that led him to it, are circumstances which here require consideration. We fully agree with him in this opinion, and think that if suicide is always to be taken as evidence of insanity, parricide and infanticide should be regarded in the same light. This would be the doctrine of those who contend that all crime is the result of some kind of insanity.

M. Marc proposes the term *Aidoiomania* (*αἰδοῖοις*, pudenda,) for Erotomania, a term used by Esquirol to designate those states of mental disorder connected with sexual propensities. This chapter, together with that on Demonomania, we pass over, as offering nothing requiring further notice. The subjects of Kleptomania and Pyromania are treated at some length. It has been remarked that a propensity to steal has often existed in females advanced in pregnancy, the motive being the mere wish of possession. Pregnancy, he thinks, should be a good exculpatory plea, where a well-educated person of strict moral conduct steals some unimportant useless article, of no value compared with her fortune. At any rate, the rejection of it would be great injustice on the old axiom: *Summum jus, summa injuria*. (p. 274.) Cases of this kind occasionally present themselves at our police courts, where this motiveless impulse for theft is pleaded by persons moving in highly respectable society. We are not aware that English practitioners have at all connected it with the

pregnant state. The rules for forming an opinion in these cases have already been alluded to.

Pyromania has been chiefly observed among young females about the age of puberty, in whom the menstrual discharge has taken place with difficulty or great irregularity. The points to attend to in such cases, where no criminal motive for the act is apparent, would be: 1, the age, varying from the twelfth to the twentieth year; 2, the presence of symptoms indicative of an irregular bodily development; 3, of those indicative of irregular sexual development (for by this the brain may become sympathetically affected); 4, any marks of disorder in the cerebral or nervous system, indicated by change in the moral character. (p. 378.) Nevertheless the want of positive evidence of mental disturbance, or the proof of sanity in the individual, must not mislead the physician, since moral liberty may be lost without a disturbance of the reasoning faculty. (p. 382.) Motives may be discovered, among which in these young persons we find hatred, revenge, mischief, discontent, nostalgia, or even the desire to see a fire on a large scale!—any one of these may exalt the pyromaniacal feeling and lead to incendiarism. The author is sensible that he is here treading on dangerous ground; he seems to us to want independent views on this subject; for much of the chapter is occupied with the different opinions of German psychologists, on the circumstances which should create irresponsibility. A plea of this kind, unless admitted with the greatest caution, might become a means for withdrawing real criminals from all legal control.

An interesting chapter follows on "*Imitative Monomania.*" Monomania, either "reasoning" or "instinctive," may be propagated by imitation. The first, being the result of erroneous ideas, is easily transmitted; these ideas inflame weak and enthusiastic minds, and thus we may account for the spread of monomania, whether connected with religious or political notions. Numberless examples of this kind might be quoted. (p. 402.) In our own country we might point to the case of Thom, whose conduct led to the destruction of his own and many other lives, a few years since, in the neighbourhood of Canterbury. The religious delusion which emanated from this lunatic raised up many ignorant and uneducated followers, who devoted their lives for him. The histories of all countries and ages abound with such examples. Many instances of the diffusion of a political monomania might also be cited. Instinctive monomania, more difficult to explain in its origin, but more easy to recognize than the former condition, is also transmissible by imitation. We must refer to the work for many examples of this kind.

The transmissibility of suicidal monomania by imitation is so well known to psychologists, as almost to justify the application of the terms "epidemic or contagious" to this state. It is more especially observed, where the facts connected with the death are such as to create much notoriety, from the means of destruction being of an extraordinary nature. Very soon after one suicide took place by precipitation from the monument of London, another was committed; and the same has been remarked in Paris. M. Marc alludes to a suicidal club in Paris, consisting of twelve persons, who put themselves to death by ballot, one by one, yearly. (p. 422.) Well may we consider that the vagaries of the human mind are incomprehensible!

This principle of imitation may be seen in other cases : thus one act of incendiarism often leads to others, as has been unfortunately illustrated in the agricultural districts of England ; but we believe that there may be a criminal as well as a monomaniacal imitation, and in these cases experience has shown there is no check so effectual as the rigorous administration of the law.

Under the head of "*temporary insanity*" the author treats not only of those mental disorders which come on suddenly and speedily disappear, but also those states of insanity which are accompanied by lucid intervals and regular or irregular intermissions. A lucid interval is commonly defined to be a temporary cessation of the insanity, while a remission is a mere abatement of the symptoms. Acts performed in the first state may be valid, if there is clear proof of the fact ; acts performed during a remission are invalid. A lucid interval may last for a few minutes only, or it may be protracted for days, weeks, months, and even years. It may come on suddenly or slowly. In a medico-legal view, its alleged existence must always be looked on with suspicion where the interval has been short. The rules for determining this state have been already described. In criminal jurisprudence, M. Marc recommends that we should judge of the existence of a lucid interval by comparing the nature of any act performed with the motives which have led to its performance: whether these motives are proportioned to its gravity ; and whether the act can be connected with any delusion in the mind of the supposed lunatic. (p. 500.) According to the quoted opinion of the Chancellor D'Aguesseau, the proof required to establish a lucid interval is much the same in France as it is in England.

Epileptics are subject to fits of temporary insanity, under which they may be guilty of acts, that may create a serious question of their legal responsibility. *Epilepsy* has been generally observed to lead sooner or later to insanity. The maniacal fury of epileptics, when once excited, is formidable, and has often produced the most fatal consequences. The older the fits of epilepsy, the more frequent and more violent they become, and the more likely are the intellectual faculties to be impaired. (p. 524.) The sooner the act committed has supervened on a fit of epilepsy, the greater the reason is there to suppose that it has depended on some disturbance of the mind. The responsibility of epileptics, a question often omitted by writers on the legal relations of insanity, requires much attention on the part of a medical jurist. M. Marc has furnished many cases which serve well to illustrate the difficulty of the subject.

Another form of temporary insanity is *drunkenness*. The author here confines himself to the consideration of that state in which the mental faculties are only temporarily impaired by vinous liquids. We gather from his remarks that the law of France is very similar to that of England, in relation to the criminal responsibility of drunkards. It is nowhere mentioned as an exculpatory circumstance, and the question of responsibility is made to rest rather upon drunkenness being a voluntary act than on the effects of intemperance on the mind. M. Marc lays some stress upon whether or not the crime committed in this state has been premeditated while the individual was sober ; but we think this would be an unsafe rule to follow, unless it was proved that the accused had pur-

posely taken intoxicating liquids, to excite himself to the perpetration of the crime. When the drunkenness has been the result of accident or collusion then the responsibility, as in the case of our own law, is much diminished. Hallucinations and illusions are a very common effect of drunkenness; and when these lead to the commission of any criminal act, then an exculpation, or at least some mitigation, ought to be admitted. (p. 610.) The author relates a remarkable case in point, where two friends being intoxicated, the one killed the other under an illusion that he was an evil spirit. The drunkenness of the accused was held to have been voluntary, and he was condemned to ten years' imprisonment with hard labour. (p. 635.) He thinks this sentence to have been too severe; but in another case which follows the prisoner was condemned to the galleys for life. A case of this description has been recently decided in our own country (March, 1840).^{*} A man while intoxicated killed his friend, who was also intoxicated, under the illusion that he was some other person who had come to attack him. The judge made the prisoner's guilt to rest upon the fact whether had he been sober he would have perpetrated the act under a similar illusion? As he had voluntarily brought himself into a state of intoxication that was no justification. He was found guilty of manslaughter, and sentenced to two months' imprisonment.

The excitement produced by narcotics very much resembles that of intoxication; and here in the author's view the question of responsibility for acts committed during this state should be decided by the fact whether the drug had been voluntarily taken, or collusively or accidentally administered. (p. 650.) This question may seriously affect those who are addicted to opium eating, and of whom the number in this country is said to be annually increasing. The rule of the English law is, that when an act is perpetrated by an individual labouring under a frenzy excited by drugs, administered medicinally or designedly by another, he is no longer responsible for it.

M. Marc's views relative to the responsibility of persons waking from sleep or in a state of somnambulism are similar to those which have been given in a former part of this article. We must, he considers, be mainly guided by the fact, whether there may have existed any interest or motive on the part of the accused for the perpetration of the crime.

The work closes with an account of the civil jurisprudence of insanity, to which, comparatively speaking, but a very small space is devoted. In respect to the validity of wills and deeds, the French law is very simple. "In order that a deed should be valid, the individual making it must be of sound mind." (Art. 901, Code Civile.) The author contents himself with illustrating this subject by cases. He recommends medical witnesses to be careful how they trust to the statements of interested parties, or found their opinions thereon. The first case is one of some interest. We learn by it that, in deciding on the validity of wills, the French law looks to all the acts of the party, and his general habits; much reliance is also placed on the manner in which the deed is expressed, if drawn up by the testator himself." Suicide following the making of a will is not

^{*} Norfolk Circuit, Aylesbury. Patteson's case, March 10, 1840.

to be taken as a proof of insanity, without reference to other circumstances. The individual in the above instance destroyed himself six days after its execution ; but the will was not invalidated on this account. By a case decided in our own courts, we find that a will was not declared invalid, although the instructions for it had been given only three days before the testator committed suicide.

A man may be affected with any bodily disease ; but unless the mind be directly or indirectly disturbed, his civil acts are valid for all legal purposes. A will was contested on the ground that the testator laboured under hemiplegia while executing it, but it was properly represented by Esquirol that, although hemiplegia may affect the brain, a circumstance indicated by the sight, hearing, and other senses becoming weakened, yet this does not necessarily indicate an impairment of the understanding. A man's mind under these circumstances may not be so strong as in robust health, but still it may retain a disposing power.

In wills made by the insane, we have seen that the proof of a lucid interval is often a matter as important as it is difficult. If the person have been already declared insane, the proof of the lucid interval rests with the devisee, and this must not depend upon probability, but upon certainty. If the person has been proved insane, then after the proof of general insanity, the existence of a lucid interval during the act must be established by those who would benefit by it. The following observations of M. Marc are good :

"Idiocy and imbecility are never accompanied by lucid intervals. In dementia, they are only met with in those cases where the dementia is not chronic, or has directly succeeded a state of intermittent or periodical mania ; and then it is characterized rather by a sort of stupor or moral annihilation, (anéantissement moral) than by an incoherence of ideas. Among the different forms of insanity, mania is that state in which lucid intervals, such as the law demands for the validity of acts, are the most frequent and perfect." (*Marc*, p. 704.)

From the remarks on "Interdiction," we learn that the cumbrous machinery of lunacy commissions does not exist in France, and that a man's property may be there legally protected without a large part of it being spent to determine whether or not he should have the control of it. The French law appears to us remarkably clear on this subject. By Article 489, Code Civile, we learn that "where an adult person labours under habitual imbecility, dementia, or mania, whether with or without lucid intervals, he is a fit subject for interdiction." Then again, for all the cases which this provision does not cover, he may, if discharged from interdiction, have a committee appointed, without whose consent no civil act of his, will be valid. (Article 499, Code Civile, p. 706.) This last article would provide for numerous cases of mental weakness with incompetency, in which the verdicts of English commissioners are so uncertain and vacillating as to allow of no general rule being drawn. A principle of this kind prevails in the law of Scotland ; but in England nothing of the sort exists ; and hence every contested case becomes a battle in which legal ingenuity is often triumphant. According to the French system medical opinions are not commonly required where the mere appointment of a provisional committee is in question. The general

habits of life, conduct, and a personal examination of the party are the points which govern the decision of the court. In matters of difficulty, however, physicians are very properly consulted.

The admissibility of the insane as witnesses in courts of law, M. Marc thinks, is rather a question for the court than for a medical practitioner. A lunatic in this respect, may be compared to a witness incompetent from age, and hence it is impossible to lay down a general rule. Much depends on the form and degree of the mental affection. "Those who labour under an extreme degree of imbecility, mania, or dementia with defective memory, are not fitted to give evidence." (p. 716.) In England, where in any case the evidence of a witness confined in a lunatic asylum has been tendered, it has been usual to infer his insanity and declare his incompetency as such, until good proof is afforded of his having had a lucid interval at or about the time of the occurrence to which he testifies.

But little is said on the application of *restraint* and the laws regulating the confinement of lunatics in public and private asylums, the author considering that this subject has been already exhausted by Esquirol. (p. 716.) In England the statute 2 & 3 W. IV. c. 107, ss. 27 & 28, requires that the certificate to confine a lunatic should be signed by two medical practitioners, not in partnership nor having any interest in the asylum, who must have separately visited and personally examined the patient to whom it relates, not more than *seven clear days* previous to such confinement. We make this statement because we are certain that many practitioners are in the habit of signing certificates without being aware of the facility with which they may subject themselves to a trial for misdemeanour. According to the French law, issued July 6, 1838, the certificate of confinement must be signed by one physician within fifteen days of the time of its presentation. The physician must not belong to the asylum, nor be related to the lunatic, to the proprietors of the asylum, or the person demanding the confinement. The keepers of asylums are placed by this law under very strict jurisdiction, indeed so strict, that Esquirol considers some of the provisions for this reason inoperative. A full account of this law is given in the *Ann. d'Hygiène*, (vol. xxii. p. 215, 1839.)

The author's observations on the responsibility of the deaf and dumb, correspond to those which have been already made elsewhere. The volume is closed with the excellent remark, that "whether in civil or criminal law, there is a close connexion between the rational principles derived from the physical and moral study of man; and those which form the foundation of a sound theory of jurisprudence."

We conclude our notice with the expression of our opinion that M. Marc has treated this subject in a masterly manner. We see throughout the hand of the physician, the medical jurist, and the philanthropist; and much do we regret that the tomb has now finally closed over the labours of this able and industrious writer. The work reflects much credit on French medical literature, and it will, we think, be highly valued by the medical jurists of Germany, America, and England.

ART. VII.

Traité des Etudes Médicales, ou de la Manière d'étudier et d'enseigner la Médecine. Par E. FRED. DUBOIS (d'Amiens), Professeur agrégé à la Faculté de Médecine de Paris, &c. &c.—*Bruxelles*, 1838. 12mo, pp. 460.

A Treatise on Medical Study, or on the Method of Studying and of Teaching Medicine. By E. FRED. DUBOIS (of Amiens.)

Observations on Medical Education, with a view to Legislative Interference. By RICHARD JONES, M.R.C.S. &c.—*London*, 1839. 8vo, pp. 52.

IN pursuance of the plan commenced in our last Number, we shall now proceed to lay down what we conceive to be the *Principles of Medical Education*. It is not our intention to discuss in detail the best method of adapting the various systems at present in operation to our own standard. This may be done better hereafter. But, whatever legislative changes are proposed, we deem it important that they should be rightly directed. We shall proceed, therefore, as if we had a medical faculty to create; and we shall build our system of education upon these two foundations:—the nature, objects, and connexions of the different departments of medical knowledge considered in the abstract; and the capacity of the average of well-educated young men for the acquirement of these.

Commencing from the point at which we left off in our former article, we shall suppose a youth committed to our care who had undergone the training there recommended; and that we were desired to fit him in the best manner we were able for the future practice of medicine or surgery, without regard to existing institutions. Now, if our formerly-expressed ideas be tolerably correct, our pupil will commence the study of his profession with the following advantages:—He will have acquired habits of close and accurate observation. He will have learned not to trust too implicitly to what is commonly termed the evidence of his senses; whilst he never allows those senses to remain inactive. He will have acquired, also, the tendency to reason upon the phenomena which he observes; to bring the principles with which he is acquainted to bear upon them; and to seek for new principles by which to explain what he cannot comprehend in his previous generalizations. He will have been accustomed, moreover, to deduce results from principles, and thus to *expect* occurrences, which will or will not verify his predictions, according as his reasoning has been correct or fallacious. Further, he will have had some practice in that most difficult, and to the medical man most important art—the analysis of complex phenomena; and he will have seen the mode in which a number of causes may unite to produce an effect which in itself appears simple. He will have acquired something of that *mental tact* which discovers the fallacy of reasoning that appears rigid and conclusive; and which, on the other hand, allows their due weight to evidence and arguments which cannot be termed demonstrative. And, above all, he will have had a glimpse of the beauty and majesty of TRUTH; and will have perceived the necessity for the absolute dismissal of prejudice in the search for it.

We have argued upon abstract grounds that education should proceed

from the *general* to the *special*; and that, up to a certain point, the course pursued should be nearly the same in all instances. When the subsequent occupation of the mind has been determined on, it will be time to direct it in that peculiar channel. But we think the early choice of a profession, before the mental powers have had time to develop themselves, and the tastes have been in some degree displayed, a very injurious plan. Of course there will be exceptions, arising out of peculiar external circumstances, or of some very decided bent on the part of the individual; but we are speaking only of general principles. Too often does it happen that youths are placed, with scarcely any choice of their own, or perhaps even in opposition to their wishes, in a business or profession for which they have no inclination or even a decided disgust. We are all accustomed to condemn the too early choice of a wife, and still more to reprobate those *mariages de convenance* which result from interested motives on the part of the parent, and in which the hearts of the individuals concerned are not taken into the account. Now we would ask, is the choice of a wife a matter of such immensely superior importance to the choice of the employment to which the whole subsequent life is to be dedicated—which is to be its business, and should as much as possible be its pleasure—that the one must be deferred until the individual has attained years of discretion, and must then be left principally to himself, whilst the other is decided upon when his mind is altogether immature, his higher capabilities scarcely manifesting themselves, and his own judgment so little to be depended upon, that it is almost entirely omitted from the calculation? It will, we think, be generally acknowledged that *he* has the best prospect of success in his profession or employment whose heart as well as his head is engaged in it; in other words, who pursues it as a favorite object, not merely as his means of livelihood. How often do we see men *obliged* to devote their intellectual powers to some occupation laborious and distasteful to themselves, yet by others relished as the constant happiness of life. And do such men succeed? The earnestness with which they prepare themselves for what they consider their duties, and the steady conscientiousness which governs their discharge of them, must give them a certain measure of success; but that measure is far below their deserts. This is peculiarly the case in medicine. How frequently does a comparatively superficial practitioner rapidly acquire a lucrative practice; while the man possessed of ten times his professional merits struggles with neglect and poverty. The world is very quick in discovering the real tastes of those who are candidates for public confidence; and, nine times out of ten, he will be preferred who *shows* that he likes his profession to him who has perhaps a higher intellectual pleasure in the pursuit of it, but whose taste cannot avoid being offended with its details. Mr. A. is known to enjoy the quiet solitude of his study, and to occupy his leisure hours in the pursuit of literary or scientific knowledge; Mr. B. is a favorite at dinner parties and balls, and an amusing gossip in the sick room. Of Mr. A. the public will say "clever man, sure to get on;" but so he will remain to the end of his days, never *getting on* beyond a certain point; whilst the patients and their fees go to Mr. B., because he makes it evident that he likes nothing better than practice.

This may, perhaps, be considered rather an overdrawn picture; but

many of our readers, we doubt not, will acknowledge its general fidelity. Our object in introducing it has been simply to illustrate our position that the *taste* as well as the *intellect* must be consulted in the choice of a profession, and especially in the decision which renders medicine the object of future pursuit. If the taste is strong it will lead to the successful employment of the intellect upon the objects towards which it is directed; if it be deficient, the chance of success from the forced application of the mental powers is very small. It is very seldom that, in boys of fifteen or sixteen years old, the nicer shades of either mental or moral character can be discriminated. Indeed, this is the time when both are undergoing the most important changes. To a certain degree these changes may be directed and controlled, but only within particular limits; and it seems to us a great error to determine upon a profession at this *transition epoch* of the mental history. Now, if such a course of general education as we have been recommending be prolonged for two or three years, say, as an average, to the age of eighteen, the mind will have had time to unfold itself; its powers are ready to be employed upon whatever is chosen as the special object of pursuit with full intensity; and, a greater variety of these objects having been presented to the student's attention, he will be able to make a choice among them with less ignorance of their conformity to his tastes and habits of thought than when he merely contemplates them, as it were, from a distance.

Among the most prejudicial errors of the present system of academical instruction, we reckon the large share of time and attention bestowed upon classical study. We have already recorded our opinion of its value as a *means* of intellectual discipline; and our entire agreement with the propriety of the regulations which demand evidence from the youth who is entering upon the study of medicine that he has availed himself of these means. It is against the *exclusive* system that we contend.

It does not seem to have occurred to those who advocate the superior value of ancient to modern knowledge, as a means of intellectual discipline, that the greatest minds of former ages—Aristotle and Plato, Cicero and Pliny, *et hoc genus omne*—were developed upon a literature which to them was *modern*. And it has been in times when the wisdom of the ancients was too exclusively studied, that the greatest intellectual darkness has prevailed. It may be thought that we are disposed to dwell too long upon this subject; but the system to which we refer is so strongly upheld by the props of prejudice and established usage, that we fear it will resist vigorous and well-directed efforts to overthrow it, in spite of the rottenness of its foundations. Unless a decided taste is manifested for classical study, or, on the other hand, there is an obvious deficiency of those mental qualifications which this study is most adapted to induce, we do not regard it as advisable to persevere in it beyond the age of sixteen, seventeen, or at most eighteen years in the average of young men. Two subsequent years may be advantageously devoted to the acquirement of scientific and general information, and the cultivation of literary taste, by attention to the standard literature of our own country, so much neglected in the training of English youth. This, perhaps, will be the most advantageous period for exercises in composition, so valuable (under a judicious instructor) in the formation of habits of thought, as

well as in the acquirement of power and facility in expression. We know many who look back upon such exercises as the most permanently useful portion of their early training; and a strong testimony of the same purport is borne in the Autobiography of Dr. Franklin, who ingeniously supplied the want of a competent instructor by a more careful study of his author. A portion of the same time may be advantageously devoted to the study of foreign languages and literature. Of these, French and German are of course the most desirable; but the Latin scholar will have so little difficulty in acquiring a tolerable knowledge of Italian and Spanish, that they should not be regarded as by any means out of his reach. Those, however, who have not an aptitude for the study of languages should not attempt too much.

Now, we think, it cannot be doubted that a young man thus prepared, having the advantage of a large amount of available knowledge as well as of high general intellectual development, will commence the study of medicine at the age of eighteen, nineteen, or even twenty, with the probability of much greater ultimate success (if his mind be decidedly bent on the study) than he who is bound an apprentice at the age of fifteen or sixteen, and has passed three or four years in the acquirement of desultory and ill-digested knowledge of some of its least important details. But it will be necessary that he should *then* apply himself vigorously and almost undividedly to the object. We believe that he will *then* be likely to do so from inclination as well as from necessity. If he have acquired that earnest desire of truth, which we have regarded his previous course of study as adapted to excite and cherish, he will not stop short with a superficial knowledge of the phenomena which his habit of active observation will bring under his notice; he will desire to consider these phenomena in all their bearings; and the time not occupied in systematic study will be employed in those spontaneous efforts, which every one who looks back upon the history of his education must feel to have been, if rightly directed, the most valuable part of his training. And this leads us to speak of a *principle* applicable to all education, but more especially to the study of medicine. We deem it of great importance that the growing mind should be caused to *educate itself* as much as possible.

We do not go so far as to say that a child should never be *compelled* to learn—a position maintained by some of the new lights of the present day; for we consider the discipline of early instruction as alike necessary in itself, and valuable in preparing for the rough discipline of the world, which must sooner or later be exercised. But in proportion as the reasoning powers expand, and the value of knowledge for its own sake is perceived, will compulsion become less necessary; and the necessity of it will be superseded by voluntary effort. The earlier the pupil can be induced to make this effort, provided that he is still content to follow the guidings of experience and matured judgment, the more permanent will be the benefit. Now it is not among the least of the advantages of such a system of preliminary education as we have recommended, that he who enters upon the study of medicine with a decided preference for it will be disposed and prepared to take his education chiefly upon himself. *Rerum cognoscere causas* will be his motto; and he will find no want of opportunity for carrying the principle into extended operation. That a systematic *curriculum* should be pursued we do not hesitate to affirm; but

we feel satisfied that the chief advantage of this is rather to point out the path to the student than to conduct him along it. If left entirely to himself there will of necessity be a certain degree of desultoriness in his knowledge. On some particular subjects which have attracted his especial notice, he will have obtained a valuable, perhaps even a remarkable extent and accuracy of information; on others he will be as deficient. We deem attendance on lectures which are not demonstrative chiefly valuable to the student, as *connecting* the knowledge he may have acquired from other sources, and indicating to himself the points on which he is most deficient. But upon this topic we shall hereafter dwell, when we speak of the individual branches of medical science, and the mode in which a knowledge of them may be best acquired.

By the term medical science we mean that department of knowledge which includes the principles and facts that are subservient to the *healing art*, and to the prevention as well as the cure of disease. We recognize no distinction at the outset between medicine and surgery. But it must be remembered that, when the practical applications of science are made the ground of its subdivision, a very different view will be taken of the relations of its various branches from that in which the abstract is the true one. Hence it is that, from the importance of a certain amount of chemical knowledge to the practitioner, the study of chemistry has been regarded as so far an essential in medical education, that it has been put on a level with topics of far higher importance. Still more remarkable has been the estimation in which botany has been held. It will be scarcely believed in future ages that full courses on these two subjects are required by the examining boards of the English metropolis; at the same time that it is left to the option of the student to acquire a knowledge of the natural functions of the human body, with whose morbid conditions he is expected to be familiar. In the view which we shall now give of the objects and relations of the various branches of medical science, we shall endeavour to combine the *abstract* with the *practical*; and we feel convinced that whatever system is based on the truest principles will be found also to work the best. What may be the value of the principles we shall endeavour to unfold, it will be for our readers to judge.

We pointed out in our former article that medicine is but a branch of the vast science of biology—that which treats of the vital actions, normal and abnormal, of all classes of living beings. It is evident, therefore, if our first principle—of proceeding from the *general* to the *special*—be correct, that some acquaintance with the latter will be the best preparation for the detailed study of the former; such an acquaintance we suppose to have been gained during the preliminary training, and the study of medicine commences with the more detailed examination of the structure and actions of the human organism. Taken in its most enlarged sense, the term *physiology* may be applied to the whole science of *normal vital action*, and the term *pathology* to that of *abnormal action*. All vital action is dependent upon two classes of conditions: the organic mechanism, which manifests the changes in question, and the external agents by whose operation they are excited; just as the movements of a steam-engine are caused by the action of heat, cold, &c. upon an apparatus fitted to respond to their influence. The structure of the human body and the properties of its various parts, therefore, afford the first ob-

jects of scientific enquiry to the student; and it is most fit on every account that anatomy should be the first department of medical science to which his attention should be enforced.

Anatomy may be taught in several different modes, each of which has its peculiar advantages. As subservient to physiology, the structure and arrangement of the organs composing the nutritive system will naturally be first investigated; and then that of the nervous centres and the other parts of the system of animal life. This constitutes physiological or functional anatomy; and it appears to us important that it should be early studied with close attention. But it will not be enough to study this only. The physiologist attends chiefly to the different forms of structure as existing separately; he studies the nervous system, the vascular system, &c. not according to their local distribution, but according to the organs they supply. The particular disposition of the viscera in the abdominal and thoracic cavities is to him a matter of little importance, provided that he knows their functional connexions with each other. The stomach might lie on the right side and the liver on the left, without their respective actions being appreciably changed. But by the *practitioner*, whether of physic or of surgery, much more than this is required. He must study the different organs and systems in their relation with each other. He must know not only the distribution but the course of nerves and arteries; not only the origin and insertion of muscles, by which their respective uses are determined, but the position of their bodies in regard to one another and to the nerves and vessels which pass amongst them; not only the functional but the local relations of the organs contained in the cavities of the trunk. The necessity for this knowledge is so obvious that we need not dwell upon it: as anatomy has been usually taught in our own country this has been made almost the sole object; and herein is the great error of the prevalent system. Such knowledge is indispensable to the practitioner; but its use lies only in enabling him to make a right application of principles. In order to acquire the principles, his studies must be more extended. We will take, for example, the treatment of aneurism. How few students are there who do not regard it as their chief duty to learn the minutiae of the various operations that may be required, and to impress on their minds the details of the anatomy of the region concerned, neglecting or treating with superficial attention the nature of the disease itself, the peculiar properties of the tissues it involves, and the principles upon which its treatment should be conducted? And, in consequence, what eagerness is manifested to get hold of "a case," on which the young operator may try his *hand* instead of his *head*! Every one knows how many more operations are performed by young surgeons than by those advanced in years and experience, who have the same field of practice. We are much disposed to attribute this in part to the stress laid upon *regional* distribution in anatomical teaching, when compared with the importance attached to those details of structure and properties, upon which all *principles* of treatment must be based. We would not be understood as undervaluing the former, or as overlooking their absolute necessity to the well-educated surgeon; all we contend for is that *principles* should be taught first, and the mode of applying them subsequently demonstrated. At present the student learns the operation for aneurism before he knows what an aneurism is; and,

in consequence, the idea of an operation is constantly associated in his mind with that of the disease, inducing him to attach much less than their due weight to those considerations which ought to guide him in deciding upon the treatment of each particular case. And it is not until years and experience have matured his judgment that these are fully comprehended.

We have selected aneurism as a convenient subject for illustration; many others might have been adverted to. But, it will be said, it is easier to find fault than to amend; and any system of teaching must be attended with so many difficulties and imperfections that it is scarcely worth while to change one which on the whole works so well. The experience of the last few years, however, furnishes indications which may be advantageously made the basis of more extensive improvements. And, as anatomy must ever occupy, on account of its demonstrative character, a prominent place in all systems of scholastic instruction in medical science, we shall take leave here to present our ideas on the best mode of teaching it. We shall find in the outset a necessity for multiplying the present number of classes; but we shall hereafter point out the facility and propriety of, at least, an equivalent reduction in other subjects.

We propose, then, as an important addition to the present scheme of tuition, a general introductory course of anatomy, which should serve as a preliminary to all subsequent study of the details of medical science. The course should embrace such an outline view of the structure of the human organism as would be engrafted with propriety on the previously-acquired knowledge of the structure of animals in general. The elementary structure and properties, and the functional connexions of the several organs would be dwelt on rather than their local disposition; and these would be compared with the analogous phenomena presented by the inferior organisms. Upon this foundation should be erected a systematic combination of the general principles of physiology and pathology, including an account of the chief alterations to which the several organs are subject, in respect to their elementary structure and properties, and their functional connexions; and the influence of external agents upon them, either in exciting or modifying their healthy action, or in affecting their diseased conditions. In contemplating the utility of such a course, and the possibility of including in it all that we have indicated, the previous preparedness of the student, both in regard to the amount of knowledge acquired and the aptitude to receive and apply principles, which we think might be generally reckoned upon, must not be left out of view. And, even if it do not effect all we anticipate, it will at least serve to communicate to the student a much clearer idea of the nature and objects of his science than he at present gains. We are by no means sure, however, that *lectures* of this kind are essential. We cannot doubt that they are preferable; since we regard it as of great importance that the student should be familiarized as early as possible with the actual objects with which his subsequent minute acquaintance is required; such as the natural aspect, size, form, &c. of the several organs of the body, and especially of the viscera. But by the country student, who is placed out of the reach of lectures, such knowledge may be gained from a book adapted to communicate it, provided that he avails himself of the oppor-

tunities of post-mortem inspection that may fall in his way, to gain that which *sense* only can convey; more especially if he have the advantage of a judicious instructor.

Whilst attending such an introductory course, the student may advantageously prepare himself at home for more detailed anatomical study, by familiarizing himself with the osseous system; a thorough acquaintance with which will lighten many of his subsequent difficulties. We should also recommend that he familiarize himself with the general phenomena of disease, and study the aspect, position, complexion, pulse, temperature, &c. of the patients he may have the opportunity of thus noticing. If he have not an ear well adapted for the discrimination of sound it would be advisable that he should devote himself much to auscultation at this period, in order to familiarize himself with its delicate phenomena; but he should commence this upon the healthy subject, and study the natural sounds of the heart and lungs in as many varieties of age, sex, conformation, &c. as he can command, before proceeding to examine, with any other purpose than that of contrast, their abnormal phenomena. We lay stress upon this, because in auscultation, as in every other department of study, it is easier to prevent the formation of early erroneous impressions than to eradicate them when inrooted; and nothing is so common as an exclusive dogmatism in regard to its many contested questions among those who have not gone through the preliminary training we have urged.

We are ourselves favorable to the nearly equal division of the *annus medicus* into two sessions of about five months each; and such a course as we have been suggesting might very properly occupy the first summer. The slight amount of dissection necessary for it may be easily performed at this time; since it would not be necessary that the subjects should be long kept. The time not occupied in the pursuits we have marked out might be devoted to the completion of previous studies—scientific and literary; and we had much rather that it should be so employed than that the objects of attention should be too abruptly and completely changed. That they usually are so appears to us a great evil in the present system. By the following winter the student will be prepared for a more detailed course of anatomy as well as for other pursuits. In assigning an order to these we shall be guided by their more or less direct bearing upon the grand object of the whole educational training—preparation for practice. In order to make our views more readily comprehensible, we shall revert to the distinctions we formerly drew (Vol. IX. p. 130) between medicine and surgery considered as *arts* and as *sciences*. The science embodies the principles; the art consists in the application of those principles. The more perfect the science the simpler will be the rules by which the artist may work; and where its principles are of the highest comprehensiveness, applicable without difficulty to every case, the practice of them requires more operative skill than sagacious judgment. But the low state of medicine as a science places the practice of it as an art upon a very different footing. No principles of any high degree of generality can be said to have been established; and no rules of practice, therefore, exist, which can be applied without exception or qualification to individual cases. And the complexity of the conditions which affect the phenomena of disease renders that knowledge of its

actual state, which must be acquired before any but empirical means can be employed for its cure, one of the most difficult among the objects to which the attention of the practitioner is directed. That kind of practice which has been described as a *rational empiricism*,—admitting principles so far as their value is sanctioned by experience, but regarding the peculiarities of each individual case as the sole guide to be safely trusted in the application of them,—must long, therefore, be the one most adopted by the intelligent members of our profession. And the preparation for it requires not only a knowledge of principles but the study of that mass of important facts which experience has accumulated, as furnishing our best guide in all the details of treatment.

Now, as in considering any individual case, we should first revert to the general principles which bear upon it, and then turn our attention to the special circumstances which modify their influence, so does it seem natural and right to act in acquiring the information which is to be thus employed. For how can the true influence of these modifying circumstances be understood, when the principles to which they are in relation are not known? Considering *practice* itself but as continuance of education, the propriety of so arranging the course of study that the theoretical should gradually merge into the practical, and this again into the actual employment of the knowledge previously acquired, becomes still more evident. Were time unlimited, this plan might perhaps be rigorously pursued; but as it is an important object that as much information as possible should be acquired in the briefest period, it will be necessary in some degree to depart from it. Still it may be taken as the chief guide. The first winter session should afford to the student the means of instruction in physiological anatomy and physiology, which may be included in one course of lectures, nearly corresponding to that now given in University and King's Colleges, London, and also in other schools. In this course should be considered more fully than in the former one those details of structure which obviously furnish the conditions of vital action—the influence of external agents in calling their properties into operation—the general laws governing the phenomena thus induced—and a history of the principal phenomena themselves. For this course, also, the student would have been usefully prepared by his preliminary education; and it would itself serve as the foundation for subsequent instruction of a more practical character. Had we been writing five years ago upon this subject, we should have thought it desirable to insert here a formal disquisition upon the importance of physiological knowledge, and to occupy some time in demonstrating that no medical education can be regarded as complete which does not include a regular survey of this department of science. But the great and increasing demand for physiological works, the success which has attended the change in the character of the anatomical lectures effected in many of the London schools, and the interest which has been shown in our own articles on the subject, lead us to believe that this may now be dispensed with, and that we may start at once from the Q. E. D.

The question may be not improperly raised, whether physiology may not be learned as well from books as from lectures; and we are not disposed to think that oral instruction is by any means necessary. In so far, however, as it is taught demonstratively, lectures are certainly pre-

ferable. The instructor is, or ought to be, provided with many means of illustration which the student cannot command; and although plates may to a certain extent supply the want of actual preparations and microscopic dissections, it is always advantageous that *the real thing* should be submitted to personal examination. There is another point in favour of attendance on physiological lectures in preference to an exclusive study of books, and this, which is applicable to the general system of academical instruction, is especially important when considered in reference to a science so rapidly advancing. We refer to the superior opportunity which the annual repetition of a course of lectures affords for communicating to the learner a proper idea of the *actual state* of science at the time. The rapidity of the sale of a book must regulate the degree in which this end can be attained by the introduction of improvements into its text; and too often it happens that a writer thinks more of the mode in which he can engraft his additions, or make his alterations, with the least trouble, than of that which will make his work a condensed reflection of the state of knowledge of the subject on which he writes. The lecturer has not the same difficulty; and if he be a conscientious instructor, will make a point of enabling his pupils to keep nearly on a level with the progressive elevation of his science. That he may do this, however, he must devote a large proportion of his time to the study of it. For it is not enough that he should make himself well acquainted with all that is known at any one time; he will find that it will be constantly necessary to remodel entirely various divisions of his scheme, as new and more exact information supersedes that previously in his possession. It is not so much in the discovery of new phenomena that we are to look for the advancement of physiology as in that more exact knowledge of the nature and conditions of those already under our notice, which may lead us to a more certain acquaintance with their causes and laws. The man who is immersed in practice, and who feels it necessary to keep up with the advance of knowledge of a solely practical character, cannot be expected to be a good physiological teacher; nor, on the other hand, do we look for consummate excellence in one who should devote himself too exclusively to physiology. The close connexion which is manifested between the healthy and morbid phenomena of living beings not only requires that a good pathologist should have a firm basis in the knowledge of normal life, but that the devoted physiologist should maintain his familiarity with the phenomena of disease. Each class is equally necessary to be taken into account in the study of the other; and, accordingly, the education of the medical man should be the same whether he devotes his subsequent life to the pursuit of the science or the practice of the art.

The physiological teacher ought to be well provided with the means of illustration, by delineations, where the objects themselves cannot be exhibited; by recent specimens and preparations to as great an extent as possible; and by the exhibition of microscopic dissections and preparations of minute structure, and of the phenomena of vital action, where these can be readily shown. We shall not discuss at any length the mode in which the course should be distributed among its several subjects. It ought to include a comprehensive survey of the general laws of vital action; a comparative view of the different groups of phenomena

or *functions*, as exhibited in the principal classes of living beings; and a detailed examination of them as they occur in man. Particular attention ought to be paid to the classification of these phenomena in regard to their abstract character—whether simply physical, entirely vital, or of a mixed nature. Experimental illustrations may often be advantageously introduced, for the purpose of showing the bearing of these upon each other, and the operation of physical causes in the production of phenomena which at first sight appear due to vitality alone. But we enter our earnest and decided protest against the practice of repeating before a class, for the sake of illustration only, experiments which involve a painful sacrifice of life or happiness in sentient beings, however low in the scale. We are not so strait-laced as to object to such experiments in the abstract, when made for the purpose of establishing important truths, but we are confident that much animal suffering may be saved by *first* ascertaining all that *observation* alone can reveal with reference to the subject, and putting questions to nature only when no other means of information are accessible. That this is often necessary we freely admit; but when once the desired results have been obtained we cannot but consider the needless repetition of the experiments as an unjustifiable cruelty. And in no instance does it seem to us that the class-room can be the proper scene of their performance. That degree of freedom from disturbing causes which is essential to the fidelity of almost every result can only be obtained amongst a small number of bystanders; and we cannot but regard that familiarity with animal suffering which is induced by the frequent contemplation of them as of dangerous influence to the moral sensibility of the student, blunted as it almost necessarily must be by the scenes of the dissecting-room and operating theatre.

In the physiological course should be included all the generalizations and the most important facts of animal chemistry. For these it appears to us that the student will have been sufficiently prepared by the preliminary course. We cannot but regard the amount of attention to chemical science required by all our medical boards as a great error. The extreme remoteness of its connexion with practice is quite sufficient, in our minds, to destroy its claim to be considered a branch of medical education. That its general principles and most important facts may be advantageously made a branch of general education we have already shown, and we do not see what more than these is required from the medical practitioner, except in a few particular departments, to which his special attention will be directed. In the course of physiology, for example, he will study the chemistry of the healthy animal solids and fluids; in that of pathology, the principal alterations which these undergo in disease. In studying *materia medica*, he will be sufficiently instructed in pharmaceutical chemistry, and his attention will be directed to the operation of general principles in those rules of prescribing by which the combination of *incompatibles* is forbidden. The teacher of forensic medicine will explain to him the application of chemical tests in the detection of poisons, blood-stains, seminal fluid, &c. And in the courses on the practice of medicine and surgery, the student will learn the very few facts relating to the application of chemical principles in the treatment of disease, which the present state of knowledge allows to be positively stated.

Now in the place of further argument on the abstract want of connexion between chemistry and medical practice, we shall satisfy ourselves, and we think convince our readers, by appealing to experience. Who but those who study chemistry as their regular pursuit find themselves now able to keep up with its rapid advance? What medical practitioner who attended a course or two of chemistry a dozen years ago knows anything of the *present* state of the science? Who that has devoted himself to the toilsome labours of his profession for a few years remembers more than those general principles which *our* plan would equally communicate and as permanently impress? A surgeon of *twenty* years' standing has little more than a vague notion of the atomic theory; one of *ten* hears of the sulpho-salts,—the double chlorides, iodides, and fluorides,—the compounds in which water acts as a base or an acid,—of paraffine and eupione, of mercaptan and camphene—with a feeling of indifference if chemistry were never a favorite object with him, and of despair if it were; and one of *five* abandons all hope of keeping pace with Faraday's discoveries, and hears of Dumas's law of substitutions, which is to revolutionize the whole science of chemistry, with much the same feelings that would be excited by an account of a change of government in Columbia. Now what does all this prove but that it is absurd to require from the medical student more than an acquaintance with those general principles which constitute the whole of the real knowledge which he possesses when he has been for ten years in practice? If he can do as well without more extended and detailed knowledge, is it not much better that his time should be bestowed upon other subjects more immediately connected with his subsequent occupations? All will agree, we think, that he *cannot* give *too much* time to practical study; and as the whole period is but limited, it seems better to exclude from it all that is not essential.

It is but natural that every teacher should have a strong conviction of the importance of the subject to which he devotes himself, and we know many who think that the education of no medical man can be regarded as complete who has not gone through a full course of experimental study and quantitative analysis. But let the importance of chemical skill and knowledge to the mere practitioner be compared with that of other branches of science, and it will be at once seen that to bestow the same proportional attention to *them* would require that the course of preparatory study should extend over the whole lifetime. It is most true that circumstances *may* arise in the experience of every one to render such knowledge available or even desirable, but what kind of knowledge is there *not* of which the same might not be said? We remember once to have heard it brought forward in a youthful debating society as a weighty argument in favour of field-sports that the skill of a "good shot" had sometimes been exerted in preserving not only his own life but that of his companions, when cast away by shipwreck; and that consequently it was incumbent on every one to learn how to bring down a bird on the wing, for the chance of his being, at some part of his life, thrown ashore on a desert island. Every one must perceive that preparation for daily, hourly duties is "the one thing needful" in medical education; and that the less frequent cases which require knowledge and skill of a peculiar kind will be much better referred to those specially qualified for them

than imperfectly disposed of by one whose opportunities of information on those points are few and far between. We do not think that chemical science will suffer from the plan we have proposed; for by including it in general education a much larger number of youths will be led to pay that moderate degree of attention to it which is more likely to lead to the formation of a decided taste for it as a regular object of pursuit, than the compulsory study of its technical details. And those who have seen how frequently the medical student is seduced into an undue devotion of time and mental energy to chemistry, during the short two or three years of his attendance on lectures, withdrawing them from that which is of so much more practical importance, will be satisfied, we feel confident, of the propriety of the change we have advocated.

Similar remarks will apply to botany, a science whose present position in the medical curriculum is entirely due to the persistence of ancient usage and prejudice. The healing art, in its early epoch, consisted of little else than "skill in herbs," and with the botany of that age it was therefore almost synonymous. As the *materia medica* became more extensive, and the practice of the healing art at first more limited to a few, and subsequently more divided into separate departments, the herb-gatherer has been separated from the herb-user; and the substitution of regular pharmaceutical preparations for the extemporaneous compositions formerly employed, has still further increased that distance. At the same time the character of the science of botany has undergone great modification. For a knowledge of the properties of plants, to which that of their forms was only subservient, has been substituted a minute investigation into their internal structure, their physiological actions, and the relations of their several forms to each other in a natural classification. Hence, from being originally almost coincident, the objects of medicine and botany have become widely separated; and we cannot see any good reason for maintaining the present connexion between them. We have supposed that in his preliminary education the student has become acquainted with the general principles of botanical science. He has been led to examine the structure of the principal tribes of plants, and to perceive their relations with each other; he has also gained a general acquaintance with their physiological actions, by which he has been prepared for the more detailed illustrations which they furnish in certain departments of human physiology. Now this knowledge is all that he will be likely to retain after a few years, supposing him to have been taught more, unless he makes botany an object of especial attention; and on this account we say, as in regard to chemistry, that it would be much better that his attention be not occupied with its details, at a time when there is so much other and more important employment for it. In the course of *materia medica* a botanical account of the chief officinal plants may be easily included; and as these belong to a small number of natural families, the student will have the opportunity of making these, which are alone of real importance to him, the subject of more detailed examination. In studying forensic medicine too, it will be desirable that he should familiarize himself with the appearance of the chief poisonous plants of his own country; but further than this we cannot see that he *need* go. As the supply of medicines is now conducted, the practitioner rarely sees the original herbs: he is supplied with the

active principles, the alkalis, the extracts, the tinctures, by his druggist, and for their character he is entirely dependent upon him. Of what consequence is it to the practitioner to distinguish the three varieties or species of cinchona, provided that his sulphate of quinine is good? or to pronounce upon the merits of a sample of senna when not an ounce of it enters his house save for domestic use? As the original race of apothecaries dies out, such matters are left to the wholesale druggist and professed pharmacist; and with these they had better remain, provided that sufficient qualifications be required for them. We do not deny that a knowledge of botany may occasionally be useful to a medical man, but these occasions are rare, and are principally confined to those living amongst an imperfectly studied vegetation, where new plants offer themselves to the enquirer for therapeutic agents, towards the properties of which they may be guided in some degree by the knowledge of the natural order to which they belong. But to those who will thus have a reason for seeking an increased acquaintance with botanical science, it will be easy to extend their knowledge of it, if a good foundation have been originally laid. And it is scarcely worth while, for the chance of such benefit from it, for the busy medical student to turn his thoughts to it, otherwise than as a healthful and pleasant recreation. We will only ask our older friends whether they do not see the justice of our remarks, and whether, prejudice apart, they do not agree with us that this time-honoured connexion should now be severed.

Putting aside then these two objects, which usually occupy a large part of the student's attention during his first year, we proceed to enquire what may at that period be most advantageously substituted for them. It appears to us that during the time of his attendance on physiological lectures, he may advantageously employ himself in the private study of hygiene. This department of knowledge is scarcely to be regarded as a distinct science, as it is but an application of physiological principles to the various conditions in which man is liable to be placed. The art of preserving the body in health can only be perfected by an entire acquaintance with the conditions of its vital action, with the injurious as well as natural operation of external agents, and with the best means of avoiding or counteracting all deleterious influences which arise either from these or from its own peculiar susceptibilities. In proportion as the scientific principles of physiology are understood will the art of hygiene be perfected; and in proportion as that art is carried into practice will the liability to disease diminish. When we see how constantly the most obvious truths, the most important rules, are disregarded, the only wonder is that health is not more frequently and irreparably impaired. Even among those who are looked upon as well-educated medical men and judicious practitioners there may be too often observed not only a total neglect of hygienic indications, but even a perverse opposition to them. We can only account for this by remembering how exclusively their attention has been directed, during the period of their education, to the phenomena of disease, and how little occasion they have felt to revert to its simple precepts when heroic remedies are so abundant.

Thinking as we do that it is much better for the student to divide his attention between lectures and private study, than to devote himself to

either exclusively, we are of opinion that hygiene constitutes a subject particularly adapted to the latter, whilst physiology is being taught by the former. There is at present no work in our language that can supply what is required by the very judicious regulations of the London University; nor are we acquainted with any which nearly approaches our idea of what such a work should be. Of the many books, excellent in their several ways, with which our press has teemed during the last few years, all, we believe, are addressed to the public rather than designed for the instruction of the medical man. Such a treatise as we should wish to see could only be executed by one who should combine with profound physiological knowledge a fund of practical information derived from long experience and from acute and sagacious observation under a variety of circumstances. Dr. Combe could write such a book.

Whilst the student is devoting his chief attention to physiological anatomy and physiology, which are to furnish him with the principles that should guide him in the conservation of health, and in the investigation of disease, he should not withdraw himself from the pursuit of knowledge of a more directly practical character. He should employ himself much in the observation of morbid phenomena, contrasting these with the healthy condition, and accustoming himself to a regular system of examination, which is so valuable in diagnosis, and furnishes so many important and frequently unexpected data for the establishment of principles. It is very desirable that he should not at this period acquire any more than *very general* notions on the subject of their *treatment*. We have already adverted more than once to the strength of first impressions; and in no case is this more remarkably displayed than in the influence of the practice of the first instructor to whom the student looks up as an authority over his whole subsequent career. On this account we much desire that the student should make himself well acquainted with the phenomena of disease, and gain a general idea of the influence of various therapeutic agents, before he is led to put faith in the efficacy of any one system of treatment; and that his peculiar attention to *practice* should not be given until a later period, when he will have learned from his more extended reading and from lectures how much he will have to trust to his own judgment in the selection of means of cure, and how little he must be guided by authority. The most advantageous practical exercise which the student can perform at this period is the observation and recording of well-marked cases of disease; and if at the same time that he observes he compare his own experience of individual cases with the general description given in standard works, he will be led to attend to the points of agreement and difference and to trace the common bond which unites many varieties together, whilst he endeavours to find out some reason for the discrepancy. In this way, if his opportunities for observation are tolerably extensive and his cases well selected, he will have acquired in a few months a valuable amount of information on the phenomena of disease as well as trained himself in habits of accurate and sagacious observation. There appears to us an important advantage in the plan we have thus suggested over the mode in which the study of medical practice is commonly pursued,—that by chiefly devoting himself at this time to the investigation of the phenomena of disease, in which he may be safely guided by the records in his

possession, he is entirely independent of the practical ignorance or dullness of the instructor under whom he may happen to be placed, and will not learn anything which he will have to unlearn at a later period. Disease is much the same everywhere; practice is widely different. Many a bad habit is acquired in the early part of pupillage which it takes years of subsequent discipline to eradicate; many a prejudice imbibed which exerts an almost imperceptible, unacknowledged influence to the end of life.

Another portion of the first winter session should be given to the study of Descriptive Anatomy. Considering it simply in the abstract we should not place it here, since it bears more upon the application of principles to practice than upon the principles themselves; and the establishment of the latter upon the basis of physiological anatomy should in strictness precede the former. But every one knows the difficulty of retaining in his mind the unconnected details which the knowledge of descriptive anatomy involves, and the necessity of a repeated study of them for the durability of the impression. We do not see that in lectures on physiology and descriptive anatomy, the former being connected with the private study of hygiene, and the latter with a moderate amount of dissection, we have provided more than the diligent student may readily accomplish, even whilst giving a regular amount of time to the observation of disease. Much will depend, as we have several times remarked, upon the previous habits, and where the mind has been trained to bestow steady attention upon the object before it to receive with intelligence and to retain with philosophic grasp, it is amazing how much may be acquired in a short time, provided that a methodical and well-arranged plan be judiciously pursued. We would not have the student devote himself, however, with too great earnestness to the acquirement of anatomical details at this early period. The structure and local relations of the viscera and the distribution of the nervous and vascular systems among them should occupy his chief attention, since the knowledge of these will be of great importance to him in the investigation of disease. If he be prepared by a thorough acquaintance with osteology, the general arrangement of the muscles, and of the blood-vessels and nerves which lie among them, will be comprehended and retained without much difficulty, and this we think is as much as he should first attempt. In studying the attachments of the muscles, their physiological action ought to receive especial notice, since a sound knowledge of this is of such frequent and important advantage in the treatment of fractures and dislocations of the extremities. Such details are much better fitted for the course of descriptive anatomy than for that of physiology, since they relieve the otherwise dry technicalities of the former, and can be very well spared from the latter.

We doubt not that many of our readers will think us treading on dangerous ground in encouraging the slightest relaxation of the attention now given to the study of anatomy: but we would entreat them to weigh well its value in comparison with that of other branches of medical knowledge, and not to be too hastily led to pronounce us in error by the *dicta* of authorities or by prejudices derived from their own education. Let it be borne in mind that anatomy furnishes, towards the establishment of the *principles* of medicine, only one set of facts, the value of which will

depend entirely upon the relations developed between them and others that are brought to bear upon them. To examine *structure* without enquiring into *function*, is in this point of view totally valueless : and to a scientific knowledge of function an enquiry into the influence of external agents upon the organism is just as important as that of the structures of the organism itself. Could any one understand the actions of a steam-engine who contented himself with investigating the structure of its several parts or organs, in ignorance of the expansive power communicated to water by heat and the condensation effected by cold ? And would any one choose to commit the repair of a complex and delicate watch to a workman unacquainted with its principles of action, however excellent he might be as a mere mechanic ? There are those who think it a necessary preparation for the practice of the medical profession that the pupil should get by heart the contents of every cubic inch of flesh in the human body, and who could descant at length on the utility and even indispensableness of such knowledge. But it must not be forgotten that others could talk as plausibly in favour of a complete course of classical study or of chemical manipulation. Let it be subjected to the same practical test which we have before applied to chemistry and botany. To this there can be surely no exception. Let any general practitioner of ten years' standing be asked as to the amount of anatomical knowledge which he retains, and of which he finds the use, (and he will soon forget all the rest,) and we venture to say that our objector, supposing him to be an anatomical teacher, will be rather startled at its small amount. We are far from deprecating any extent of anatomical knowledge which the student has time and inclination to obtain, but we think that common sense indicates the propriety of not *cramming* him with more than experience shows to be permanently valuable, especially during the first year of his pupilage, when we would have him chiefly or solely impressed with those truths which are to be of most importance to him in after life. That there *may be* circumstances in the life of every practitioner which may render the minutest anatomical knowledge desirable, and that irreparable injury *may* possibly result from the want of it, all must admit ; but are we then to regard such knowledge as imperative upon *every* student ? We should, upon the same principle, require from him a *perfect* knowledge of medical, surgical, and obstetric practice, which it is quite Utopian to expect. The "*non omnia possumus omnes*" cannot be too steadily kept in view in forming plans of medical education ; and when the great extent of the domain to be surveyed is remembered, and its deep intricacies are borne in mind, the importance of as much simplification as possible in the objects and amount of the knowledge to be gained becomes sufficiently apparent. Now let any one contrast the *possible* mischief that may result from ignorance of some difficult points of minute anatomy with the *certain* and *constant* evils resulting from the transgression of hygienic rules permitted and even enjoined by medical men to their patients, and there cannot be a doubt we think of the advantage of attending to the latter, even at some loss of the former. The anatomy of the chief surgical regions cannot be too thoroughly known ; and though we deem its proper place, as we have already hinted (p. 181,) to be in a later part of the curriculum, where it stands part of the surgical course, it ought not to be neglected at an ear-

lier period, in order that it may be strongly impressed on the mind. But as it is very seldom that the mere general practitioner need perform those operations for aneurism, stone, &c., which require the greatest anatomical knowledge, it appears to us that the preparation for them may be mostly left to those who decide upon devoting their chief attention to surgery, and who will go through a higher course of education for this express purpose.

The next branch of medical science which presents itself to our notice is Pathology—the science of *morbid action*; and to this and its allied topics the student may advantageously devote himself for a considerable period. In the sense in which we employ it, the term pathology may be regarded as of parallel import to physiology, including the consideration of all the abnormal states of the organism, whether congenital, accidental, or acquired; of the external agents which may operate injuriously upon it; of the irregularities of action thus resulting; and of the various influences by which these may be checked and the normal state restored. We thus include the departments known as morbid anatomy, ætiology, and general therapeutics, in addition to the science of disease or nosology and symptomatology, as commonly understood. To the study of these, concurrently with that of actual phenomena, we would have the pupil give his almost undivided attention during the second summer session; and under the guidance of a judicious instructor he may pursue this as well from books as by attendance on lectures, when at least such books as we should wish to see shall be in existence. In studying pathology, we should not perhaps find it convenient to pursue the order which abstractedly is most scientific. The diseases which can be traced to original and evident peculiarities in the structure of the body are but few and not of primary importance. It would be better to commence with an exposition of what is known of the general influence of local changes on the constitutional state, and of the converse influence of constitutional states or diatheses in producing local diseases, the express seat of which is determined by accidental circumstances. Let it be remembered that we use these terms only to express conditions which we know by their results, and of the hidden nature of which we may gradually learn something by a judicious mode of enquiry. Every one knows that there are such predispositions, and we can see no objection to the use of the term *diathesis*, if it be borne in mind that it really tells us nothing of the cause of disease but expresses only that which a little circumlocution would convey in common language. The influence of the natural external agents on peculiar states of the organism and that of peculiar morbid agents on the organism might then be discussed: these two subjects together constitute the science of ætiology, which obviously holds a corresponding place in pathology with the laws of the operation of the vital stimuli in physiology. From this we should proceed to study the principal classes of diseased actions in general—their phenomena, results, and the conditions on which they depend. Here it will be seen how small a part is morbid anatomy of the real science of pathology, and how much attention needs to be given to the phenomena of disease as manifesting themselves during life, before we can become scientifically acquainted with it. It is necessary to bear in mind the distinction between an elementary or simple morbid action considered in

itself—such as inflammation, and that train of sympathetic phenomena resulting from it which constitute what is commonly regarded as the disease, the symptoms being mostly due to the latter. In order properly to appreciate both they must be studied separately; and the groups of phenomena which manifest themselves under the joint influence of both may be afterwards detailed. The nature of the action itself having been discussed, its results should be enquired into: and here it is that morbid anatomy becomes most useful. But that the information which it imparts is at best very imperfect is evident from this, that violent diseased action may have existed during life without leaving any traces perceptible to attentive scrutiny, if its duration has not been sufficient, and that, on the other hand, appearances may often be discovered after death which have no relation with any diseased action occurring during life, and which nothing but a very sound discrimination can distinguish from those which are really indicative of it. Moreover there can be no doubt of the existence of many diseased actions which anatomical skill has hitherto failed to detect, and which will probably long continue stumbling-blocks to the pathologist.* Further, it is now generally admitted that the first departure from the healthy state generally, if not always, exists in the fluids of the body, and especially in the blood; and a thorough examination of these, microscopically and chemically, in every case would, if it were possible to make it within a short time after the extinction of life, undoubtedly throw as much light on the nature of disease as the examination of the structural changes in the solids. We fully anticipate that a time will come when the latter will be only regarded as indicative of the existence of minuter alterations of a more general character, of which they will be considered as particular instances, modified by special circumstances; in other words, that the pursuit of the line of investigation which has already been attended with such brilliant success in reducing a large number of apparently different diseases to the same general standard, by the separation of their accidental from their essential phenomena, will be equally or still more fertile in important results, when followed with increased sagacity and extended means of research. We may notice, by way of example, the Protean manifestations of what is now known as the tubercular diathesis; and the relations lately developed between these and inflammatory conditions.

With the general account of the nature and causes of the principal varieties of diseased action may be properly combined a general account of the curative means adapted to each; and this will include a sketch of the operation of different classes of remedial agents upon the system, and of the most advantageous means of employing them. This is usually embodied in the course of *materia medica*; but we are persuaded that its proper place is here, general therapeutics being strictly a part of general pathology. And it will be useful to the student that his first ideas on the treatment of diseased action should be immediately connected with those of its nature. When more details become necessary they may be advantageously separated. Under the head of special pathology will be considered the combinations or groups of diseased action as they exhibit

* This is especially the case with those in which the nervous sympathies are much involved.

themselves to us ; that which is believed to be the original one, or fundamental cause, being first expounded, and then the collateral phenomena displayed. This will lead to the consideration of the symptoms to which they give rise ; and the difficulties of diagnosis will be frequently adverted to, although it will be better not to treat of them here in detail. In this department of the science, diseases should be classed according to their abstract nature so far as known ; and the subdivisions of these classes will be grounded on the character of the tissue or organ affected. But it will not be desirable to enter here into an exposition of the treatment of each ; its causes, however, should be fully discussed.

Such is an outline of the course of instruction in pathology which we should deem at once philosophical in itself and adapted to the wants of the student. If, whilst pursuing it, he devotes himself sedulously to the observation of phenomena at the bed-side of the patient and in the dead-house, he will have acquired an excellent preparation for the study of the practice of medicine, surgery, and midwifery, to which he should devote nearly all his subsequent time. During his second winter he should pursue his anatomical studies ; and he should make himself acquainted, either by lectures or reading, with the particular properties and mode of use of the different articles of the *materia medica*. This knowledge is, we think, best gained from lectures, if the instructor be a man of large experience ; but from books if he be not competent to afford original information that can be depended on. And here we may remark, once for all, in regard to lecturers, that, other things being equal, we should consider young men preferable as instructors in medical science, and men of mature age and extended experience as teachers on *practical* subjects. The truth of the latter proposition is obvious ; some of our readers may differ from us in regard to the former. Our reasons are these :—it is among the young that we usually see most strongly existing that love of knowledge for its own sake, which shall cause them to delight in the advance of knowledge, in spite of the additional trouble which it requires from them to keep pace with it. With those who have long had to endure the cares of this world, and to struggle with difficulties and discouragements in the discharge of their duties, often almost weighed down by their ill-recompensed labours, the *cui bono* very naturally operates strongly ; and if no immediate practical benefit seems likely to result from a new discovery, however interesting and important it may be in itself, they do not feel inclined to give themselves much trouble to become acquainted with it. On the other hand, the eagerness of youth takes especial delight in such ; and the more unoccupied state of the mind prepares it for the reception of scientific truth once proved to be such, which would have to beat down a strong wall of prejudice raised by long habit before it could enter the understanding of the veteran. We have reason to know that the comments we gave in a former number on Dr. Macartney's opinions on the subject of inflammation were appreciated and adopted by many of our younger brethren, whilst others more advanced could not be driven, by any argument, from what seemed the impregnable position, that no reparation *could* take place without an inflammatory process.

We shall say little upon the instruction on the practical departments of the profession, which should occupy the latter part of the student's

academical course, because we have little to suggest in regard to the mode of teaching these subjects which will be new to most of our readers. It appears to us that when pathology has been previously studied as a science, diseases should be expounded by the teachers of practical medicine and surgery, not according to their fundamental nature, but as they present themselves to the observer during life; and thus they will be classified either according to the nature of the symptoms to which they give rise or to the position of the organs they affect. The pupil should be led to observe each as a group of phenomena, by the study of which he may, through a sagacious and skilful investigation, arrive at a knowledge of the latent cause; and having acquired this, he will have to bring experience, either of his own or of others, to determine the best means of cure. We approve of a nosology founded on one or other of the two principles we have alluded to—the fundamental character of the disease, or its external aspect; but we think the mixture of them decidedly objectionable. A practical nosology may be made perfect at once; but a scientific distribution can only be made in a very advanced condition of knowledge; and the two have or ought to have little in common. The more the student is led at this period to observe disease, not in its leading symptoms only, but in those minutiae on which the success of treatment so often depends, the better prepared he will be to be thrown upon his own resources. We should be disposed to require two or even three years of *practical* study from every candidate for a general licence to practise; and these might be advantageously passed in three different schools. For we deem it a great advantage to a man who has once acquired fixed principles to see as much variety as possible in the mode of carrying them into operation. But the habit of going from one school to another whilst the mind is yet immature, and is unpossessed of the knowledge requisite to discriminate the good from the bad, we deem very prejudicial. If good practitioners were “as plenty as blackberries,” we should deem Mr. Jones’s plan—that every student, on completing his academical education, should pass two years with a medical man of ten years’ standing—a very useful one; but, in the present state of the profession, to introduce it as a legislative enactment would be, it appears to us, completely out of the question. For, with such an education as we have proposed, the junior would of necessity feel his superiority in many respects to his more advanced friend; and their intercourse would thus be rendered very difficult. We should prefer trusting to a well-devised system of clinical instruction and observation, in which that attention should be bestowed on individual cases which, as clinical lectures are now frequently given, is directed to the disease rather than to the patient. According to the plan which we have proposed, the disease would be treated in this manner in the course of practice of medicine; whilst it would have been more *scientifically* studied in that of pathology.

It will have been perceived that all the departments of medical science which we have hitherto glanced at concern man only as an individual. Were a human being placed alone in the world, with a knowledge of the effects of disease and of the means of cure within his reach, he could apply that knowledge to his own case if necessary, as well as to the members of an extensive community if he were situated among them. And

as the liability to disease and injury is a part of the inherent constitution of the bodily structure and mental endowment of man, so do we find in all countries and at all epochs individuals who have made the means of his restoration their especial study.

Now, the science of law or jurisprudence is also based upon the constitution of man; but instead of regarding his physical nature, it is principally connected with those moral tendencies which affect his fellow-men. It considers him not in his individual but in his social character, not as an insulated being but as a member of a community. The solitary inhabitant of a desert island owes a moral responsibility to his Maker, but he holds no relation with his fellow-creatures; he exercises no influence over them, he is subject to no restraint from them. Monarch of all he surveys, he freely roams through his domain without the possibility of injuring the person or the property of others, or of receiving injury from them. But suppose such a one transferred to the midst of a civilized community; immediately that he comes into relation with his fellows, a *duty* towards them begins to operate. This prevents him from committing actions detrimental to them; and, in like manner, he enjoys a corresponding security by the influence of *their* moral obligation. Whence this moral obligation primarily springs it is not our present purpose to enquire; but it is evident that the *rights* of man are but its result, and that these rights cannot be said to exist until man is brought into connexion with his fellows.

It is a necessary result of the nature of the social state that every individual must make some sacrifice of his natural rights for the common benefit; but that which he surrenders for the welfare and security of others is repaid to him in the corresponding security in which he is placed by the operation of the laws framed for the benefit of the community. It must be evident to every one that the perfection of a code of laws destined to extend the greatest protection to all, with the least infringement of the rights of any one, must depend upon its adaptation to the physical and mental constitution of man. Here, then, is the original, the fundamental connexion between law and medicine. Whilst the physician studies with minute accuracy every department of the structure and functions of individual man, the legislator seeks to derive from him those particulars which concern man in his relation to his fellows. And as laws for the regulation of conduct can only be securely framed by those who have analyzed the springs of human actions, so those which bear upon the physical condition of man can only be firmly based upon an acquaintance with his corporeal frame. Too many instances of a neglect of these precautions will occur to those who have cast a discerning eye over our statute book; and many laws, fortunately not often called into operation, still disgrace our code, which afford a painfully convincing evidence of the ignorance and empiricism which prevailed in the times when they were framed. One object, therefore, of *legal medicine* (using that term in its most enlarged sense) is to bring the science of medicine to bear upon the enactment of laws, for the preservation of the health and physical well-being of the community. This department of the science, commonly but incorrectly denominated medical police, is now beginning to assume its proper rank in other countries; but our own is far behind-

hand in this respect; and laws are still enacted in absolute defiance of the plainest hygienic principles.

Supposing that a complete code of laws had been framed, which should accurately define every species of offence against the person or property of others, and should apply to every case in which the social rights of men are involved, it is manifest that, in the proof that offences against these have been committed, and in the determination of various doubtful questions to which they relate, evidence will be required from those who have made the human frame in health and disease their especial study. It must be observed that, with regard to matters of *fact*, medical testimony is no more valuable than that of an observant spectator; but it is the business of the medical jurist to enquire into many facts which he knows to be important, although trivial in the eyes of others; and to state the inferences to which he is led from them by that previous preparation of mind which alone can enable him to appreciate their true value.

If, then, we regard *legal* or *juridical medicine* as embracing all the relations which subsist between law and medicine, we may consider *medical police* as including those which concern the framing of laws, and *forensic medicine* as comprehending those involved in their execution. This is a good practical division of the subject; and has the advantage of being founded upon the original basis of the whole science.

That in any scheme of medical education which professes to be adapted to the wants of the age, juridical medicine should occupy an important station, will scarcely, we think, be disputed. Medical police and public hygiene are so closely allied that they may be conveniently taught together; but the details with which forensic medicine is concerned are drawn from a much wider range of subjects. Not only physiology but pathology; not only hygiene but the practice of medicine, surgery, and midwifery, with chemistry and botany, ought to be understood by the medical jurist. But it may be said, if forensic medicine only embraces those departments of the various medical sciences which have a relation with the administration of justice, there is no need of its being made a distinct branch of education, as the student becomes acquainted with each group of facts in the usual course of professional acquirements. This, however, is far from being the case; since most of the facts upon which the science of forensic medicine is grounded are of a kind which the mere practitioner would disregard, and which derive their sole importance from their connexion with legal questions. Thus, when an individual receives a wound from some unknown source, it is the object of the surgeon to repair the injury in the safest and speediest manner; while the medical jurist looks for some indication of the weapon with which it was inflicted and the motives which influenced the perpetrator. How successfully the minutest particulars of the case may frequently be determined by a skilful examiner, the records of justice sufficiently attest; whilst, on the other hand, they frequently exhibit instances of ignorance, presumption, contradiction, and neglect, which are a disgrace to the character of the profession.

Abstractedly considered, however, we can scarcely regard forensic medicine as a distinct science. The practice of it is an *art*, based upon

principles derived from several distinct sciences; these principles having no relation whatever to each other, but having, from accidental causes, a common direction to the same point. Thus, in the investigation of a case of suspected poisoning, the medical jurist enquires into the symptoms during life as if he were a physician, contrasting them with those produced by natural disease; he examines the appearances after death as if he were a pathological anatomist, and endeavours to draw from them additional evidence; and he analyzes the contents of the stomach, thus obtaining the most decisive of all testimonies as a chemist. In the practice of all departments of medicine there is somewhat of the same combined application of distinct and unconnected principles; but it will generally be perceived that these are brought in as *adjuncts*, and are subservient to some main principle which is by their means to be carried into operation. Thus, the surgeon employs mechanical contrivances in the reduction of dislocations; the physician administers remedies which shall have a purely chemical operation upon the contents of the stomach. But the whole science of forensic medicine is made up of such unconnected materials; and there is no one fact which can be said to afford it an independent foundation. Take, for example, the medico-legal enquiries which are prosecuted in a case of suspected infanticide, and it will be seen that they are mostly connected with the performance of certain physiological changes which constitute a part of the history of the new-born infant. Suppose that we perceive, on looking at the exterior part of the body, that the cuticle is desquamating, or that the separation of the umbilical cord has partly taken place, our minds are at once made up as to the fact of the infant having lived for many hours. What are these signs but the results of important vital changes?—results of no moment to the physiologist and therefore unnoticed by him, but still forming a part of a complete history of normal life. If these signs are absent, the enquirer proceeds to the examination of the respiratory and circulating apparatus; and all the indications for which he seeks are dependent upon the performance or nonperformance of that great physiological change, the most important in the life of the human being, by which the circulation becomes dependent upon the respiration of the individual. Now the physiologist looks only at the effect of this change on the future history of the being. It is of no consequence to *him* whether the ductus arteriosus contracts equally through its whole length or whether it assumes a conical form; whether the lungs inflated by natural inspiration are more disposed to float in water after having been submitted to pressure than those distended by insufflation. But these, although the foundations on which the medical jurist erects his inferences, are really questions appertaining to the physiologist; and the same may be said of a great number of others.

Seeing, then, what extensive acquaintance with the details of other branches of science is required from the medical jurist, it is rather surprising that, in the English schools, this important province should generally be assigned to the youngest and least experienced among the teachers. Its recent introduction as a distinct branch of study will in part account for this strange condition. We must wait a good many years before we see it occupying its due position in this country; and

before such medico-legal reports, as those which France and Germany can abundantly furnish, shall be readily obtained from those qualified to kill or cure in Britain. At present there is a great apathy in regard to this subject among a large proportion of medical students. They look upon it as one of little or no practical importance; and one with which it is very likely that they may never have any concern.

Every medical man ought to be so far acquainted with the questions which are involved in the practice of forensic medicine as to be able to commence with discrimination and accuracy the peculiar enquiries which any case that presents itself to him may demand. And as the medical attendant is often among the first persons, capable of giving intelligent testimony brought to the scene of action, he should not omit to notice those collateral circumstances which are frequently so important in the subsequent investigation. But we are of opinion that the further prosecution of the enquiry had better be committed to those more skilled in it. It is impossible that every practitioner should become a skilful medical jurist. It might as well be expected that every one should be an eminent physician, a first-rate surgeon, a profound chemist, a skilful oculist, a learned physiologist. In this department, as in every other, there must be a division of labour. We do not see why a professed medical jurist should not be called in to prosecute a medico-legal enquiry with as much propriety as an eminent physician or surgeon is consulted in a difficult medical or surgical case. This is the custom on the continent, and it is a very common practice in Scotland. The professors of forensic medicine in the Universities are consulted, as a matter of course, in any doubtful case; the contents of stomachs are sent to them for analysis from all parts of the country; and the proceedings on the side of the crown are conducted in accordance with their opinion. This plan, we conceive, would be introduced into England with far more advantage than the medical coroner system. It is as a *witness* that the medical man is important; not as a judge. If the medical coroner get hold of a stupid or blundering medical witness he has no help; the verdict must be given according to evidence; and he has no right to contradict the statements which have been given. On the other hand, an intelligent lawyer accustomed to investigations of this kind, and a skilful medical witness, present the combination which is evidently most likely to elicit the truth. In every important provincial school there is now a teacher of forensic medicine; and thus, in almost any part of the country, a skilful witness may be obtained within a moderate distance.

If such a public appointment were connected with the lectureship, every party would be benefited. The latter office would be filled by men of more knowledge and practical skill than those who now usually hold it. The public would have the advantage of the best evidence that could be procured, and, consequently, the greatest probability of a fair administration of the law. And the teacher would be enabled to give practical instruction to his pupils, instead of the present dry detail of cases and experiments. We can speak from experience when we say that the prosecution of one interesting investigation may leave a more valuable impression than a whole course of lectures. Such an appointment would of course be attended with a certain additional expense to

the public; since it could not be expected that a man of standing in his profession should submit to the liability of being thus summoned from his regular employments without being handsomely remunerated. But whilst lawyers are receiving large incomes from the public purse, for aiding in the administration of justice, is it unreasonable to expect that, for such an important service to the public, medical men should receive a proper consideration for their services? The creation of such appointments—no sinecures, but well-remunerated offices—we regard as one of the means by which the state may encourage medical science with advantage to itself. In Scotland, where the sheriff has much more power than the coroner in England, considerable expense is often incurred for the purpose of the due administration of justice. We have known an eminent surgeon of Edinburgh sent for to Perth to tie the external iliac artery of a lad who had received a dangerous stab in the thigh. This was done by order of the sheriff, that no plea of *malum regimen* might possibly be set up in the event of the boy's death; as the blame might have been laid on the operation, had it been decided on and performed by a surgeon of less reputation.

If such a plan were pursued, the medical practitioner would be better able to concentrate his attention on the subjects more immediately within his province, and more important to his success. If he felt that he is not expected to conduct a minute chemical analysis, in a case of supposed poisoning, he would have more undivided thought to bestow on the observation of symptoms and post-mortem appearances; and he would study more closely the physiological action of poisons in the living system—an enquiry very closely connected with that which relates to the operation of medicinal agents or therapeutics. Still he should by no means be ignorant of the general principles upon which such an analysis is prosecuted; and he should be alive to all those occurrences which may affect its ultimate success. But it will scarcely be denied that he may be better occupied, as an intelligent practitioner, in attending to the medical history of the case, and in searching for the collateral evidence, of which *he* will, beyond all others, be most competent to indicate the sources, than in perplexing himself by endeavouring to apply his imperfect and half-forgotten chemical knowledge to an enquiry which may be more satisfactorily answered by the lecturer on forensic medicine in the nearest medical school.

From the foregoing remarks it will have been perceived that whilst we advocate the uniformity of medical *education*, we by no means object to a subdivision of medical *practice* into various departments. It is impossible for one individual to keep pace with the progress of knowledge on all branches of this extensive science; and, even if he were able to do so, it is highly improbable that he would be equally successful in the application of his knowledge to the treatment of the multifarious cases of disease and injury which present themselves in practice. It is universally allowed that the *division of labour* is favorable to perfection in all arts; and we do not see why it should be otherwise in the practice of the *healing art*, provided always that the choice of a special department be not made, until the *principles* of the science of medicine have been ac-

quired. Here, again, our fundamental doctrine, of progress from the *general* to the *special*, comes into operation. We see no reason why any restraint should be placed upon a practitioner who, after a sound education, chooses to confine his attention to a very narrow class of subjects. Not only will the distinction between the surgeon, the physician, and the accoucheur always, from the very nature of things, be kept up wherever there is a population sufficient to maintain practitioners who, specially if not exclusively, profess these departments; but in all towns of large size or local importance, there will always be oculists and dentists, aurists and orthopædists; and it seems to us essential to the improvement of our art that such should be the case. It requires a far greater share of experience than usually falls to the lot of any individual engaged in general practice, to make important additions to our knowledge of the pathology and treatment of diseases in the least degree uncommon. That so little has been hitherto done for science by those who have devoted themselves exclusively to restricted branches of practice, must be attributed to the very imperfect nature of their education. When the diseases of the ear and the teeth shall be as scientifically investigated and as competently treated as those of the eye are at present, we may look for important additions to our very defective knowledge of them.

The choice of a special department of practice, after the general principles of pathology and therapeutics have been acquired, very much resembles the choice of a special department of natural history, after a comprehensive survey has been taken of the whole organized creation. By none is it possible that an equally accurate and minute acquaintance with all groups of animated beings can be acquired within the compass of a single life. The two divisions of the world of organization—the animal and vegetable kingdoms—naturally suggest two separate objects of pursuit, zoology and botany. These, like medicine and surgery, may be advantageously pursued by separate individuals; but the fundamental principles of both sciences are (or ought to be) the same; and he who specially devotes himself to either will do so at a great disadvantage if not conversant with the general applications of those principles in the other. Again, zoology subdivides itself into as many subordinate branches of science as there are natural groups. We have the ornithologist and the conchologist, the herpetologist and the entomologist, the ichthyologist and the actinologist. That such a subdivision tends to the perfection of the science cannot be doubted. But it is equally unquestionable that it would be far more advantageous if, before devoting himself to the pursuit of any one department, the young naturalist were to gain a general view of the whole science, and acquaint himself with the principal facts relating to the structure and actions of the chief subdivisions as well as of the animal kingdom. It can scarcely be conceived by those who have not attended to this subject, how many errors would have been avoided, how many new facts would have been observed, and how much perplexity to those who combine and generalize these facts would have been saved—in short with what vastly increased rapidity the science of natural history would have advanced if this course had been pursued by its votaries. At present we regard it as almost in its infancy. A vast amount of materials has

been collected; but these are of so heterogeneous a nature as to admit only of very loose and unsatisfactory combination; and so they will remain until facts are observed in their relations to each other and to general principles, and not for their individual importance.

Just so it is with regard to medical science. We are firmly convinced that the minute subdivision of its applications to practice is favorable both to the success of the *arts* immediately founded upon it, and to the ultimate elevation of its own philosophical character. But it is essential to the accomplishment of this object that those who devote themselves to these subdivisions should have a thorough acquaintance with the principles which combine them all, and render them all subservient to the *philosophia medica* which is one and undivided. They are so many tributaries pouring the streamlets which originate from widely scattered sources into one noble river; but, that they should reach it, they must have a *right direction*, otherwise they become stagnated in inland lakes, and their waters serve not to swell the general current. We do not mean that an acquaintance with the *details* of each branch of practice is necessary or even desirable for him who restricts himself to one. Although it is interesting, it is not of vital importance to the physician to know whether a fractured thigh may be best treated by the straight splint or the double-inclined plane, or whether the circular amputation or the flap-operation be preferable, or what is the most advantageous point for tying the femoral artery in a case of popliteal aneurism; but he ought to know the principles upon which the treatment of fractures is conducted; the constitutional states which render an amputation desirable or contraindicate the performance of it; and the pathology and general treatment of aneurism. These, if he have studied them with attention, will remain in his mind, whilst the details which to him are practically unimportant are forgotten. Just so it will be in regard to all other subdivisions; even those of local affections, as the diseases of the eye, ear, and teeth. All these are connected with particular states of the constitution in such a manner that they can only be treated advantageously by one who has learned to discriminate these and apply his remedies to them; but it does not follow that an oculist should be a person to whose care we should like to commit a case of peritonitis, or that an aurist should be capable of extracting a stone from the bladder.

We are much mistaken if the view which we have now presented will not be found to reconcile all the principal difficulties of the subject. It has been contended on the part of some that, as pathology is but one science, and the fundamental principles of medicine and surgery are alike, there should be no division in the application; and that the constitutional origin of a great proportion of local diseases points out that they must all be put under the treatment of the same practitioners. On the other hand it has been urged that experience has shown the advantage of a subdivision; and that a degree of practical skill has been acquired by those who have concentrated their attention within a narrow circle of cases, which is not attainable by those who diffuse it over a wider range. Both doctrines are rightly founded; and we have shown how they may be harmonized.

It will be only, of course, in the midst of a large and dense population

that the subdivisions we have alluded to can be advantageously practised. In country villages, as at present, the same individual must be physician and surgeon, oculist and dentist; and assistance of a higher character can only be obtained by those who can afford to obtain it from a distance. And, even in large towns, a great proportion of the practice will be in the hands of the same class, whose less expensive education and less ambitious establishments enable them to be satisfied with a more limited remuneration than is required by practitioners of a higher rank. But, whatever be their ultimate destination, we would have the same qualifications required in the first instance from all. We would have the same general acquaintance with the theory and practice of medicine and surgery made the condition of admission to practice; and we would have those who design to pursue some *special* department of their profession, first qualified as *general* practitioners, by such an education as the examination for the primary degree would require. Thus, in conformity with a great physiological principle, we should pass from the *general* to the *special*; and the higher grades would present, in the progress of their development, the permanent forms of the lower. Some of our readers may think such analogies forced and inappropriate; but we regard them as something more than superficial resemblances. They are the *common results* of the great principles of *philosophia prima* operating in different directions.

Higher degrees, both in medicine and surgery, should, we think, be attainable by those who seek for them, upon their producing evidence of more extended attainments in these departments, and of having been engaged for a certain time either in general practice or in attendance on hospitals. It seems to us that the two degrees should be distinct; since it is a useless tax upon the attention of him who intends to devote himself to the cure of internal diseases, to require the details of regional anatomy and operative surgery; and there are some departments of special pathology which need not be required from the pure surgeon. But there should be nothing to prevent the same individual from obtaining both diplomas, if he should deem it advisable.

We shall do no more, at present, than suggest the general outlines of a scheme by which our plan might be adapted to existing institutions, in England at least; provided always that the present governors of those institutions were willing to adopt it, and thus to avoid being altogether put aside. We would unite the Colleges of Physicians and Surgeons with the present University of London into one medical faculty; introducing some alterations into the constitution of all, so as to make them harmonize better with one another. To the University, we would commit the preliminary examination, and the examination for the first degree, that which qualifies for *general* practice. The College of Physicians should give the higher *medical* diploma; and the College of Surgeons the higher *surgical* diploma. The Apothecaries' Company should test the qualifications of dispensing chemists; and none but those who have obtained their license should be allowed to sell drugs by retail, or to make up prescriptions. We beg the unprejudiced attention of our readers to these suggestions.

ART. VIII.

1. *Adversaria Medico-Clinica*. Edidit F. G. LIPPICH, M.D. *Series prima*. Fascic. I., *Morbi Lubeanorum Anno 1828, observati.—Patavii*, 1836. 8vo, pp. 144. *Series secunda*. Fascic. I., *Annales Scholæ Medico-Clinicæ Patavinæ, Annus 1834-5.—Patavii*, 1837. 8vo, pp. 182.

Medico-Clinical Notes. By F. G. LIPPICH, M.D. *First Series*. Fascic. I., *Diseases observed at Laybach, during the Year 1828*. *Second Series*. Fascic. I., *Annals of the Medico-Clinical School of Padua, during the Year 1834-5*. Padua, 1836-7.

AFTER a residence of twelve years in Laybach, as physician in ordinary, Signor Lippich had determined to publish the results of his experience, when he was appointed to the clinical chair in the university of Padua; which appointment, by the increased facilities for medical observation that it has afforded him, has induced him to change his original plan, and to bring out together an account of one year of his popular practice in Laybach, and of one year's clinical practice in Padua, under the idea that a comparative view of the diseases and their treatment, in two distant and different places, would be more interesting and instructive than a history of either published separately.

The first series, accordingly, consists of a register, month by month, of the most prevalent diseases of Laybach, in the year 1828, preceded by a summary of the meteorological changes during the same time, with which, after the manner of Sydenham, Signor Lippich attempts to connect them. But after all his observations and *ex post facto* conclusions, he does not appear to have established, even to his own satisfaction, anything more important or certain, than that great variations of the thermometer induce head affections, and, when combined with those of the barometer, chest disease; that humidity disorders the abdominal viscera, and electrical changes are attended by eruptive diseases. The want of arrangement and numerical details rendering this fasciculus quite useless for statistical purposes, we shall merely extract a few particulars, that we think may be worth the notice of our readers.

Eight cases of *trismus nascentium* are given, of which five occurred in January, and one in March, May, and November; and all of them, except that in May, were traceable to cold, and exhibited, after death, marks of cerebral congestion, and even of apoplexy. We do not rely much upon this result of a disease, in which respiration is so much impeded by the convulsions of the respiratory muscles, for the explanation of its pathology,—but we cannot help thinking that too great stress has been laid by Drs. Clarke and Colles upon the influence of an impure atmosphere in the production of this complaint, contrary to the analogy of the same disease, in its idiopathic form in the adult, which is well known to be frequently produced by cold.

Upon the use of *tartar emetic* in *bronchitis* and *pneumonia*, Signor Lippich observes, that in the former this remedy acts by inducing nausea and vomiting, with a consequent removal of the obstructing mucus; but that tolerance is established in the latter, because in pure pneumonia it

is very difficult to excite vomiting. From our own experience we should say, that when it does not act upon the bowels, it has a directly sedative action upon the heart, and, if combined with opium, a most powerful sudorific effect also.

Among the cases given at some length, is one of profuse *menorrhagia*, in a young girl, produced by the irritation of hardened *fæces*; another of *ascites* and extreme cachexia, from enlarged spleen, cured by the patient getting drunk with gin, or a spirit distilled from the juniper; and a third of *starvation*, of an old man of seventy-nine, whose stomach and intestines, after a fatal fast of three days, were found ulcerated and highly inflamed.

From the end of June till October, a severe and fatal epidemic *dysentery* prevailed; the most remarkable point attending which was its equal virulence 3000 feet above the level of the sea, on the exposed flanks of the mountains, and on the banks of the marshes from which it first arose. Many of the cattle in the neighbouring villages were affected at this time, with mortification of the spleen; and several persons who incautiously handled the bodies, or ate the flesh of these animals, contracted carbuncles (anthracæ) that proved fatal to some of them. Many dogs went mad at this time, and bit several persons; but by speedy and renewed applications of the cautery, both actual and potential, all ill effects were prevented.

In his second series, Signor Lippich, after giving a slight medicotopographical sketch of the city of Padua, proceeds to treat separately of the various diseases presented to him during the medical year 1834-5. But although the number of the cases is given, there is the same want of a proper arrangement that we noticed in the former series, and hence there is but little that we deem worth extracting.

The city of Padua, said to have been founded 1183 years B. C., is situated in an extensive plain, at an elevation of thirty-two feet, French, above the sea, on a loamy and quickly-drying soil, intersected by various branches of the river Brenta. The country slopes from the north and west, towards the sea on the east, and the marshes between the Po and the Adige on the south, on which sides it is subject to inundations, which, however, are carried off by channels formed for the purpose. Vegetation is remarkably luxuriant, particularly in the vineyards and corn-fields. The mean height of the barometer is 28·1; of the thermometer, 56° 66', F. The number of rainy days is 105 in the year, which yield 24° 11' 8", by the rain gauge. The prevailing winds, in winter, are from the north and east; in the summer, from the south. The north winds often bring rain, and cold weather; but snow is rare. The dampest weather occurs in autumn, but the greatest quantity of rain falls in October, June, and May; the least in July, August, and November. During the spring, which is very short, sudden transitions to the heat of summer frequently happen; but the summer heats rarely rise above 86°, F., though they often do not fall below 77°, F. The walls of the city are six miles in circuit, comprising 4,193 houses, with gardens, fields, and open spaces. The suburbs contain 2,527 houses. The population of the whole municipality is 55,000. The deaths are 1,550, and the births 1,590. (This gives eight inhabitants to a house; the deaths nearly one in 35·5, and the births one in 34·6, nearly.) The

greatest mortality occurs in winter, particularly among children under one year, who constitute one third of the whole number of deaths, and two thirds of them die in the winter quarter.

Intemperance in wine and venereal pleasures is chiefly confined to the lowest classes; of the hospital patients, however, two thirds of the males are addicted to drinking, and very few of them have not been affected with some venereal complaint. The prevailing diseases are agues, sometimes of a malignant character, gastric remittents, rheumatism, catarrhs, occasional erysipelas, pneumonia, pleurisy, hepatitis, &c. Diseases of the heart and great vessels are pretty frequent; and there is abundance of scrofula, rickets, chlorosis, and especially of worms, though *tæniæ* are rare. Disorders arising from venous congestion, as hemorrhoids, and other fluxes, both bloody and mucous, particularly leucorrhœa, are very common, from whence, and from agues, obstructions of the abdominal viscera arise. (Here the effect is put for the cause.) Pellagra, endemic in Upper Italy, is here confined to the peasantry. There are no acute endemic exanthemata, nor the miliary eruption of the Veronese. Scarlatina belongs more to the Alpine provinces, and is only sporadic, in general, in these parts. Towards autumn, diarrhœa and dysentery,—in winter, hooping-cough, usually spring up.

The civil hospital is built upon an eminence outside the town, facing, on the north, an arm of the Brenta, where the noise of an adjacent mill (says Signor L.) is a great obstacle to stethoscopic examinations. There are two clinical wards, situated one over the other, that for males being the lower, containing, together, twenty-four beds.

Directing his attention to the influence of the weather upon disease, Signor Lippich gives the following account of the two periods of six months, in the scholastic year 1834-5, beginning with the autumn and winter months. At this time the weather was variable, and the sky cloudy, the wind blowing chiefly from the north and east. The mean temperature, from the beginning of November to the end of March, was 39°, F., barometer 28° 3' 13". The greatest difference of the thermometer was 12 degrees, of the barometer one inch and seven lines. The autumn and winter were colder, and the air was drier and heavier than usual. Under this influence the diseases, particularly the more acute, were of an inflammatory character; and an epidemic variola prevailed. At the commencement of the second half-year, the weather continued wintry, and on the 17th of April snow fell, in sufficient quantity to cover the fields. It was changeable up to the summer, which was dry until August, when the gauge indicated more rain than in the four previous months. The winds, as in the winter, blew chiefly from the north and east: mean temperature, 63° 11'; barometer, 28° 1' 27". The mean temperature of July was 78°, and the variations of the thermometer, in May, were equal to those of the barometer in the same month, being 63° 5' of the former, to five inches of the latter.

The inflammatory forms of disease subsiding, now gave place to gastric disorders, which assumed a bilious character as the summer advanced. Very few vernal agues remained; but towards the close of the summer all fevers, of whatsoever kind, exhibited a great tendency to an intermittent type. The gastric disorders continued through the summer, and even up to winter, so prevalent, that few, whether febrile or not, were unattended

by a vitiated state of the gastro-enteric secretions. This was remarked in almost all the dissections throughout the year, and many instances of enlargement of the iliac follicles were met with.

The connexion between abdominal congestions and attacks of ague has been noticed by most writers, but, as we remarked in our review of his work on diagnosis, (*British and Foreign Med. Rev.* Vol. VI. p. 128,) no person, we believe, previous to M. Piorry, has considered such congestions, of the spleen in particular, as the proximate cause of the febrile paroxysms. The observations, however, of Signor Lippich tend strongly to confirm this opinion. In speaking of the intermittent fevers of Laybach he says, that there was uneasiness of the left hypochondrium, in all the quotidians, in most of the quartans, and in some of the tertians; in which last, however, the right side was generally affected. Now, as the enlargement of the spleen is with difficulty distinguished in many cases of ague, it might be that it was present in such tertians when it was not sufficiently marked to induce uneasiness, or a prominent tumour, or where the coexistence of a more painful affection of the liver masked the disease of the less sensible spleen. Signor Lippich accounts for the more frequent occurrence of ague in women who have passed the menstrual period, upon the principle that abdominal congestion, produced by the cessation of the menses, causes an irritation of the ganglionic nerves, that exhibits itself in the form of ague. After his arrival in Padua, he adopted in such cases the Italian plan, of applying leeches to the anus; and he states, that the results are highly favorable to this method of relieving the abdominal viscera. At the same time, he does not neglect other means, but makes use of mercurial inunctions, and the internal administration of calomel and purgatives. Many of the cases were greatly influenced by the sudden cessation and return of the hemorrhoidal and menstrual discharges. Contrary to observation in our more northern climate, the number of continued fevers was greater in summer than in winter; and though none originated from, yet many passed into, intermittents, especially during the dog-days.

Although Dr. Lippich is so firm a believer in the doctrine of crises, that he divides diseases, in his Pathological Proem, into *phanero-critici*, and *crypto-critici morbi*, yet, in his account of continued fevers, he adduces but a few instances (eight out of twenty-nine) of the termination of the complaint by a critical discharge. Of these, two occurred with a flow of urine, and one of them with sweat also, on the twentieth and fortieth days; two by diarrhœa, on the fifth and eleventh; one began on the eleventh, by the return of the catamenia, and was completed on the seventeenth, by diarrhœa; one on the fourteenth, by piles; and one by vomiting, on the fourteenth. Even of these eight, those that occurred on the eleventh, fourteenth, seventeenth, and fortieth, were not perfect crises, as the convalescence did not immediately succeed the discharges. The other four must be admitted as real crises; and though we should be sorry to recommend the inert practice of a *médecine expectante*, yet we cannot help thinking it one better calculated to exhibit the powers of nature over febrile diseases than our *nimia diligentia*, by which, we have no doubt, many a critical effort for relief is obstructed and overpowered; the medical attendant considering it as an exasperation, or complication of the malady, and treating it accordingly. The frequency of local in-

inflammations in the fevers of this country, the improvement in our pathological knowledge of them, and the influence of the doctrines of Broussais, have, we think, contributed to this disregard of some of their most remarkable phenomena, in modern works on fever, and among the present race of practitioners; but we would still beg to recall the attention of our brethren to the admirably exact descriptions of disease left us by the ancients, and to the consideration that such close observers of symptoms could hardly have been mistaken in a matter of such importance, that it formed the basis both of their pathology and treatment. Seven cases of delirium tremens were met with, in men between the ages of twenty-eight and forty-four. This disease has only lately been observed in Italy, having been introduced, together with the use of spirits, by the foreign armies that have occupied that politically-debased country. It assumes more of a sthenic character than in northern Europe and America, and instead of opium, is best treated by venesection, cold applications, and emetics, which Dr. Lippich attributes to the greater irritability and tendency to inflammatory disease of the Italian constitution.

Three cases of that remarkable disease, pellagra, occurred, one of which, of two months' duration, was completely cured in twenty days; and both the other patients were so much relieved, as to warrant a belief in their continuing free from the complaint, if unexposed to its exciting causes. In all, the mind was affected with a melancholy stupor and indifference, with great proneness to suicide; indeed one patient, as soon as he entered the hospital, threw himself into the river, and was drowned. The treatment consisted of tonics and aperients, with leeches to the anus, to relieve abdominal congestions, together with an improved diet. Signor Lippich concurs with the Italian physicians, in attributing this disease to severe labour on an unhealthy soil, under a burning sun, with insufficient food, and all the other evils of the lowest poverty. In its commencement, it is attended with febrile and inflammatory symptoms, but soon degenerates into a cachectic form, analogous to scurvy, and terminates in insanity, of a melancholy and stupid kind. It seems to be hereditary.

ART. IX.

Odontography; or a Treatise on the Comparative Anatomy of the Teeth; their Physiological Relations, Mode of Development, and Microscopic Structure, in the Vertebrate Animals. Illustrated by upwards of 150 Plates. By RICHARD OWEN, F.R.S. Correspondent of the Royal Academy of Sciences of Paris, Berlin, &c. &c., Hunterian Professor to the Royal College of Surgeons, London. Part I.—London, 1840. 8vo, pp. 112. Pl. 50.

THE "decline of science in England" was, a few years ago, the subject of much discussion, both at home and abroad. To what extent the imputation was, at the time, well-founded we shall not stop to enquire, being satisfied that it can no longer be cast on our country either by native malcontents or foreign detractors. Had we nothing else to show, the splendid work of which the first part is now before us would be sufficient. It embodies the results of a discovery which alone stamps its

author as the most original contributor to anatomical science at the present day; whilst, in the manner in which it has been worked out, there is abundant proof of his being the most philosophic.

It is not our present purpose to enter upon the details of this interesting subject; it will be better, on every account, that we should reserve them until the completion of the work. But we think this a fit opportunity to direct the attention of our readers to the nature and value of the researches whose fruits will be embodied in it. And we do this the more willingly because the author has reserved his general introduction until the whole of the details have been exposed; with the very proper motive, we presume, of adapting it most advantageously to the new facts with which he may become acquainted during the course of publication. With his characteristic modesty, he confines his statements to mere facts; and, without any pompous heraldry, presents them in their simplest dress, and, to some perhaps, their least attractive form. But to those who are prepared to appreciate their value, the idea of "beauty when unadorned adorned the most," will doubtless occur, as it has to us; for never has our *beau ideal* of the manner in which an important discovery should be communicated to the world been so completely realized.

The most important *general facts* discovered and substantiated by Professor Owen regarding the structure of the teeth, we believe to be the two following:

1. That teeth grow, like bone, by intussusception; that they are not extra-vascular structures, as Hunter, followed by Cuvier and many others, maintained; but that they are originally formed by the deposition of calcareous matter in cellular tissue, by a process bearing a general analogy to that of ossification.

2. That the microscopic examination of the teeth reveals correspondences and differences in their structure in the various groups of vertebrated animals, so constant and easily recognized that from the smallest fragment of a fossil as well as recent tooth, not only the class and order but even the family, and in some instances the nearest allied genus of the animal to which the tooth belonged, may be predicated with certainty.

The first of these discoveries was made by observation of the development of the teeth in the foetal shark, in 1838. Mr. Owen remarks that in these, as in many other fishes, we have an exemplification on a large scale of the earliest or papillary stage of dental development in the higher classes of animals. It is not succeeded by either a follicular or an eruptive stage; since the formative papillæ are never inclosed, and consequently never break forth. The unossified pulps, examined with a high power, consist of semi-opaque granules or cells, suspended in a clear *matrix*; and the whole is inclosed in a tough transparent membrane which forms the outer surface of the pulp. The formation of the tooth commences by the deposition of earthy particles in the latter, which thus becomes the enamel-like polished coating of the tooth; and the process of calcification gradually extends from without inwards, the pulpy substance being actually converted into solid *dentine*; and not giving place to excreted layers of it, as commonly supposed.

It is among the highest characteristics of the true philosopher to determine where he may safely and certainly reason from analogy, and to dis-

tinguish the cases in which he must distrust it. The celebrated assertion of Newton, that the diamond was combustible, is familiar to every one; though few have perceived as he did the importance of the analogy on which he rested it. Now on the single series of observations to which we have referred, Mr. Owen has based his general statement of the character of the process of *dentification* in all vertebrated animals; and the event has proved him to be right. The independent observations of Schwann upon the development of mammalian teeth, which we have already noticed (vol. ix. p. 513) lead to precisely the same conclusion, when interpreted by those of Mr. Owen. But without the latter, their full bearing might not have been recognized; and this has indeed happened even to Müller, who, in the second edition of his *Physiologie*, (in which he takes full cognizance of his friend Schwann's excellent observations,) still classes the formation of teeth with that of hair and other extra-vascular parts, in the category of "Formation by Apposition." Mr. Owen's views were expounded in his lectures at the College of Surgeons in May, 1839, previously to his becoming acquainted with Schwann's researches; and a more detailed statement of them was transmitted by him to the French Academy, in acknowledgment of their election of him as correspondent; which statement will be found in the *Comptes Rendus* for last year.

If this principle is sound, as we think there can be no doubt that it is, and comes, as it must, to be generally received, it is the most important information on the subject of the teeth that can be given to the practical dentist. To prove that teeth are essentially developed like bone,—to show by what modifications of osseous structure their vitality, when fully formed, is so masked that they have appeared to the most intelligent anatomists as brute bodies, and to point out by what channels a tooth, though in the main extra-vascular, may receive materials for its support, or influences to its decay—are among the objects of Mr. Owen's work; and it is obvious that the settlement of these questions must have a most important influence on the progress of dental pathology.

To the medical man *this* is the point of most importance; but to the scientific anatomist, and more especially to the palæontological naturalist, the *second* is of surpassing interest. The fame of Cuvier will probably in future years chiefly rest upon the discovery that there is such a degree of conformity between the various parts and organs of an animal, that the whole may be inferred, by an anatomist rendered skilful by previous knowledge, from a small portion. But it was necessary that this portion should retain its external form, and should belong to some characteristic part of the structure. That conclusions, equal in certainty and minuteness, should be drawn from an amorphous fragment was never dreamed of by the illustrious author of the *Ossemens Fossiles*; and we cannot help regarding this discovery as yet more remarkable than any *single* principle established by Cuvier. The application of it has served to set at rest prolonged discussions founded upon the external appearance of most characteristic portions of the skeleton; and thus the value of this means of investigation is shown to be superior to that of any other. A few instances must suffice.

Most of our readers, we presume, are acquainted with the existence of a certain fossil in the Stonesfield slate which has been commonly

regarded, after Cuvier, as having belonged to a marsupial quadruped, but which many eminent osteologists pronounced to be the remains of a reptile. Not many months ago a very vigorous war was carried on between the two parties, and many new names were proposed for the creature, in accordance with the respective views of the nomenclators. Amongst others the name *Botheratio-therium* was jocularly conferred upon it by the reporter of the Proceedings of the Geological Society in the Athenæum, and gravely adopted by the French savans. Mr. Owen was the chief supporter of Cuvier's views; and against him were ranged Blainville, Grant, Ogilby, and other eminent comparative anatomists. The latter based some of their most important arguments on the supposed analogy of the *Basilisaurus*, recently discovered by Dr. Harlan of Philadelphia, which had, like the Stonesfield fossil, double-fanged teeth,—a character previously supposed peculiar to mammalia. But being led by other appearances to doubt the saurian nature of these remains, Mr. Owen submitted a section of a tooth to microscopic examination; and the result confirmed his previous views, by demonstrating its place to be between the carnivorous and herbivorous cetacea, as Dr. Harlan then readily admitted. Thus the analogy which had been so much insisted on proved to be as much in Mr. Owen's favour as it before seemed against him; and the marsupial character of the Stonesfield fossil is now, we believe, generally admitted.

A similar confirmation has been afforded by the microscopic examination of the teeth to Mr. Owen's opinion, formed upon independent grounds, in opposition to those of Blainville and other eminent anatomists, that Cuvier was right in regarding the *megatherium* as more closely allied to the sloths and ant-eaters than to the armadillo; and that the tessellated armour, found in occasional proximity with its remains, does not belong to it, but to a distinct genus, to which the name *Glyptodon* has been given by Mr. Owen, more resembling the armadillo.

It would be easy to multiply instances of this kind; but we forbear for the present to do so. We must remark, however, that the entire working-out of the principle above alluded to, as well as the first conception of it, is due to Mr. Owen; and this has been accomplished by the laborious and minute examination and comparison of several hundred microscopic sections of recent and fossil teeth, the most important of which will be figured in this work. The plates of the part already published leave nothing to be desired in regard to illustration; and we trust that the demand for the work will be such as to convince its author that his merits, as the most eminent comparative anatomist of his day—the worthy successor of Hunter and Cuvier, combining the original and philosophic spirit of the one with the industrious mastery of details which was the peculiar characteristic of the other—are not lost sight of by his countrymen. The members of the College of Surgeons may feel an honest pride in having contributed to develop his genius, and in retaining in their noble museum its laborious results. We trust that this treatise is only the forerunner of similar works on other departments of comparative anatomy; and that the osseous, genital, and other important systems may be treated with the same skill and originality, and in the same self-contained form, so that if health and time be not spared him to complete the whole, each portion may be complete in itself.

ART. X.

Gatherings from Grave-yards ; particularly those of London ; with a Concise History of the Modes of Interment among Different Nations, from the earliest periods. And a Detail of Dangerous and Fatal Results produced by the unwise and revolting Custom of Inhuming the Dead in the midst of the Living. By G. A. WALKER, Surgeon. —London, 1839. 8vo, pp. 258.

MR. WALKER's object in the book bearing the above title is to call attention to the present method of disposing of dead bodies, and the many dangers arising therefrom. Custom, in too many instances, reconciles us to bad habits, and even renders it painful to us to separate from them. We are nationally as little disposed to admit, or at least as little disposed to act upon the admission of the objections which apply to burial-grounds in the midst of houses for the living, or to adopt means for the removal of them, as an Irishman is to remove his favorite dung-hill, from beneath his family's nose, or to discard from the social circle the domesticated pigs, whose stinks, excrementitious and otherwise, perform so important a part in the early education of at least one of the organs of sense of his family.

Mr. Walker is desirous to render the evils of the present mode of sepulture apparent, being convinced of their enormity, and proportionally anxious for their removal. He is quite an enthusiast in his subject. He says, "Burial-places in the neighbourhood of the living are, in my opinion, a national evil ; the harbingers if not the originators of pestilence ; the cause, direct or indirect, of inhumanity, immorality, and irreligion." It does not comport with our present purpose to enquire whether Mr. Walker has proved the whole of the above proposition. For such evidence as he has collected, and far and wide has he gone in search of it, we refer to the book itself. Our object will be to select from his volume such matter as belongs to the physical rather than to the moral man.

The author has related many facts, illustrative of the disposition existing in ages long past to bury the dead at a distance from the living. In the first centuries of Christianity, the interment of bodies in towns or churches does not appear to have been practised. Exceptions appear to have been first made about the time of Constantine. Ecclesiastical authorities opposed the practice on the ground of its dangers, and there have been more modern protestations against it.

The French, as is usual in such matters, are far before ourselves in their efforts to obviate the evils arising from the proximity of the dead to the living. And we shall do well to well reflect upon their doings :

"The laws prohibiting interment within cities or towns throughout France were founded upon the reasons urged by the parliament of Paris, viz., that complaints were made of the infectious consequences of the parish cemeteries, especially when the heat of summer had increased the exhalations ; that the air was then corrupted ; that the most necessary aliments would only keep a few hours in the neighbouring houses ; that this proceeded either from the soil being so completely saturated that it could not retain or absorb any longer the putrescent dissolution, or from the too-circumscribed extent of the ground for the number of dead annually interred ; and that the same spot was repeatedly used, and, by the carelessness of those who interred the dead, often, perhaps, reopened too soon." (p. 228.)

It is difficult, nay impossible, to estimate the degree in which the population of any place suffers from proximity to dead bodies. We entertain little doubt of the injurious effect of this proximity; but, in the majority of instances, the effect can, of course, be only shown by certain and probably trifling deviations from health. Mr. Walker has accumulated evidence of various kinds; some of this proves the sudden effect of exposure to the atmosphere of vaults and graves. The following is an example: A man was buried in a common grave of the church of Notre Dame, at Montpellier. The grave-digger had scarcely descended into the grave, when he was convulsed, and fell down motionless. A man who followed to draw out the digger, became almost immediately insensible, and was drawn up half dead; it was long before he recovered under the use of strong cordials. Several others were similarly affected by exposure to the same atmosphere. Facts are on record which show the influence of air, infected by the exhalations from dead bodies, in producing fevers of a malignant character. Mr. Walker has mentioned some of this kind; such, for instance, as the following:

"The body of a very fat man was buried in the church of St. Saturnin; twenty-three days afterwards, a grave was opened by the side of the former, to bury a woman there, who had died of the same disease (a mild catarrhal fever). A very fœtid odour immediately filled the church, and affected all those who entered. In letting down the body, the rope slipped, by which the body was shaken; a discharge of sanies followed, the odour of which greatly annoyed the assistants. Of one hundred and seventy persons who entered the church, from the opening of the grave until the interment, one hundred and forty-nine were attacked with a malignant putrid fever, which had some resemblance to the reigning catarrhal fever; but the nature and intensity of the symptoms left no doubt that the malignity was owing to the infection of the cathedral." (p. 97.)

The evidence in cases of this kind is striking and conclusive; but, in some of the instances mentioned by Mr. Walker, he does not make due allowance for causes cooperating with the noxious exhalations.

We are not sufficiently alive to the ill effects which may arise from the interment of bodies in churches, although there can be very few who have not noticed the effect produced upon the atmosphere of a church by the existence of dead bodies beneath.

Haller states, that "a church was infected by the exhalations of a single body twelve years after burial; and that this corpse occasioned a very dangerous disease in a whole convent."

Mr. Walker is disposed to regard the burial of bodies in churches as a frequent cause of epidemic diseases.

It is stated by M. Fourcroy, who was deputed by the French government to superintend the health of workmen employed in certain extensive exhumations, that "the grave-diggers informed him that the putrid process disengages elastic fluid, which inflates the abdomen, and at length bursts it; that this event instantly causes vertigo, faintness, and nausea, in such persons as are unfortunately within a certain distance of the spot where it happens; when the object of its action is nearer, asphyxia and death frequently occur. These men regard this period with the utmost terror; no inducement afforded by the philosophers employed in this superintendence could prevail upon them to assist their researches into this dangerous vapour." (p. 125.)

In addition to the general facts collected by the author, and to which we have very briefly alluded, (for, in truth, the question, as it affects health, lies in a very narrow compass, as, if it can be shown that exhalations from dead bodies have been injurious to the living, a sufficient case is made out for their separation,) Mr. Walker enters into an account of a great number of the metropolitan burial-grounds, and mentions facts connected with their management which call loudly for proper authoritative interference. He has, indeed, undertaken a toilsome and not a very gratifying task. The information contained in his work ought to be extensively known, and especially among those who possess the influence essential to effect the changes which it is his chief object to bring about. Mr. Walker's own residence is in Drury-lane; and he states it as his conviction that the numerous cases of typhus which he there witnesses are mainly to be attributed to the proximity of public as well as of private burial-places. His book must be almost as alarming as the figure of Death himself to the inhabitants of the various districts whose burial-grounds he has examined and described; and if they cannot remedy and are unacquainted with the evil, we feel quite disposed to recommend them to remain in ignorance, as the greater bliss. The connexion of aggravated forms of disease with the exhalations from bodies, is shown to exist on probable not certain evidence. The following is one among the facts which Mr. Walker mentions :

"I was called upon to attend a poor man residing at 33, Clement's-lane; his health was broken, his spirits depressed, and he was fast merging into that low form of fever of which this locality has furnished so many examples. I found him in the back room of an extremely dirty house, his wife and family with him. On looking into the 'green ground,' through the window of his room, I noticed a grave open within a few feet of the house; the sick man replied to my observations: 'Ah, that grave is just made for a poor fellow who died in this house, in the room above me; he died of typhus fever, from which his wife has just recovered; *they have kept him twelve days*, and now they are going to put him under my nose, by way of warning to me.'" (p. 152.)

As an instance of the condition of some of the vaults in London churches, that in St. Clement's church is mentioned. The descent to this vault is near the communion table, "and, when opened, the products of the decomposition of animal matter are so powerful, that lighted candles passed through the opening into the vault are instantly extinguished," &c.

Some of these vaults are beneath the churches; others are beneath school-rooms for children; and it may well be questioned whether the modicum of knowledge which they there acquire be not dearly paid for by the effects of such a neighbourhood. It is a curious fact that, although some burial-places have been used as such from time immemorial, they do not appear to change their level. Speaking of the "Green Ground," in Portugal-street, Mr. Walker observes :

"Enormous numbers of dead have been deposited here, and yet the ground remains persistently level. It would be desirable to obtain an account of the number. . . . Should it appear that the ground has been overcharged, information should be given of the removal of the earth—necessarily removed to admit of the continuous deposits. Bulk must occupy space. If removals of previous occupants should occasionally have been effected, it would be desirable to know by what authority. . . . The general question might be asked,

Where have the remains of those removed been deposited—in what manner have the materials of which the coffins were made been used or appropriated? Unfortunately, it has long been notorious, that, through the criminal neglect of survivors, the most disgusting violations of the dead have commonly passed off unnoticed and unpunished. On the surface of many grounds, I have repeatedly seen coffin-wood piled up for removal, and I could not refrain from wondering that this barefaced insult to the living, necessarily preceded by a disgusting exposure and too-frequently dismemberment of the dead, could have taken place with impunity, and that the perpetration of these acts should escape unpunished." (p. 233.)

We have quoted these remarks, because Mr. Walker states that they apply to the "vast majority" of places which he has examined. And yet scenes of this sort, which must be matters of daily observation, occur among a people whose delicate sensibilities are extraordinarily shocked at the idea of a body being employed for the purpose of dissection.

We must now, however unwillingly, terminate our notice of Mr. Walker's book. He has evidently all the enthusiasm of Old Mortality among grave-yards, with a genuine practical benevolent purpose in view; and we take leave of him with an earnest recommendation to continue his efforts, until he witnesses their effects in a change of the present revolting system, and in its miserable effects; promising at the same time that, in as far as is consistent with our purposes as reviewers, we will give him our most cordial cooperation.

ART. XI.

Medical Etiquette; or an Essay upon the Laws and Regulations which ought to govern the conduct of Members of the Medical Profession in their relation to each other, &c. By ABRAHAM BANKS, Esq., M.R.C.S.L. &c.—London, 1839. 12mo, pp. 104.

THE title of this work is not strictly appropriate. The term *etiquette* relates only to manner and external observances, whereas some of the points here discussed involve the principles of professional morality, and come under the head of what is usually denominated medical ethics, while others have reference to the organization of the profession, the rights of medical practitioners, and other matters constituting what has of late years been called medical politics. We see no objection, however, to viewing these subjects in a common light. The state of manners has an intimate relation to that of morals, though not always of a direct or obvious kind, since it must be admitted that what is called good breeding often springs from the most corrupt moral sources, while the ingenuous expression of the best feelings of our nature would occasionally give rise to outrageous infractions of politeness. Still we think it may be assumed as a general position, that good manners, in the truest sense of the term, are indications of benevolent feeling and of an intelligent and cultivated mind; and this may be more especially maintained with regard to the manners of a profession which, having for its objects the pursuit of natural truth and the permanent welfare of our species, ought to exempt its members from those changeful modes of frivolity which float on the surface of society, and form the atmosphere in which the minor vices delight to play. We believe, indeed, that if a high tone of mind and feel-

ing were general throughout the medical community, a code of etiquette would scarcely be required; and manners and usages peculiar to practitioners of medicine would consist merely in some slight modifications of the ordinary habits of gentlemen, which a few particular positions, fewer perhaps than is usually imagined, render necessary in our own as in all other professions. Again, we are convinced that an improved state of morals and manners would inevitably give rise to a new organization of the profession and a new system of medical politics.

But it is time to notice Mr. Banks. His little book is evidently written in a good spirit, and some of the opinions it contains are judicious; but we would strongly recommend him, in his next edition, to chasten his style and keep closer to his subject; for it must be acknowledged that his remarks are sometimes entirely irrelevant—that certain passages intended to be rhetorical are eminently bombastic and unmeaning—and that others, meant to be humorous, degenerate into mere buffoonery. Thus at p. 16 he expatiates on the baseness of allowing our conscience to be silenced in political matters by considerations of interest. On this there can be but one opinion among honest men; but we cannot perceive that the sentiment applies more to the medical practitioner than to any other person; we therefore deem its expression in this place quite superfluous, while the language in which it is clothed will be found to justify abundantly our charge of inflation. For example:

"The abandoned wretch who prostitutes his political principles to his worldly interests is sunken to the lowest depths of depravity, degradation, and dishonesty; he is a robber and assassin; and would, if he had the power, not only demolish every outpost of all the social institutions of humanity, but with fiendish spirit would strike at the very foundations of that rock on which Justice has built her throne." (p. 16.)

..... Pulmo animæ prælargus anhelet!

Again, chap. xx. begins as follows:

"There are a great many trifling questions about which there seems to be no general understanding, and it is to be hoped there never will, as they are quite unworthy of notice. It may perhaps be as well to allude to two or three, just to illustrate our meaning, such as whether prescriptions should be written in English, Latin, Greek, or double Dutch? Whether it be lawful for one medical practitioner to decipher the prescription of another? Whether medical men should dress in black or brown; wear kid or Berlin gloves; eat peas or beans, or go without if they cannot get either?" &c.

All this is very silly, and so far from being worthy of a teacher of medical etiquette, would be far beneath the dignity even of a popular master of the ceremonies.

Mr. Banks's treatise consists of twenty-one chapters, of which the first four are occupied with the relations of medical practitioners to each other, the terms on which they should meet in consultation, and the respective remuneration of the attendant in ordinary and the practitioner called in for the occasion. We shall not enlarge much on these points, because we do not think it possible that they can be satisfactorily adjusted while the organization of the profession remains in its present state. We cannot at all agree with our author that *years* should be made the grand basis on which to found distinctions with respect to rate of remuneration. We

do not think that the public would be easily persuaded to set a higher value on the opinion of a stupid man of sixty than on that of a clever man of thirty. At the same time we fully coincide in the popular predilection for the elder man, supposing a parity of abilities, education, and opportunities.

It appears to us that we cannot do better than imitate the French in equalizing the rank of the profession by demanding of all its members the same course of study and the same criteria of proficiency, and disjoining altogether the profession of medicine from the trade or art of the *pharmacien*. In such a state of things, the position of the consulting practitioner (we use the common phrase, *consulted* would be more correct,) ceases to be a point of difficulty. Whoever is called into consultation naturally takes the precedence *on that occasion*, nor do we see any reason why he should not receive a proportionally higher fee. If A takes precedence of B to-day, B may take precedence of A to-morrow. If an individual be very frequently called into consultation, it shows that the profession or the public, perhaps both, have formed a high estimate of his abilities; and he may become gradually a consulting practitioner *par excellence* on a ground of distinction, which ought not to wound the self-love of his brethren; because although it be quite possible that his reputation may be greater in the eyes of the public than of the profession, and may be owing rather to the attraction of his manners or the dexterity of his policy than to any real superiority of professional knowledge or talent, this must always be the case, to a considerable extent, under every possible organization of our own or any other profession—for it arises from the incapacity of men to judge of what they do not understand, and their natural disposition to found confidence on personal predilection where data are wanting for a correct estimate of actual merit.

In chap. vi., "On Mode of Payment," our author insists on the expediency of remunerating all medical practitioners by *fees paid at the time*. To this we entirely assent, in regard to the upper and middle classes of society; nor, as far as concerns them, can we perceive the smallest validity in the objection frequently urged against it. We are told that the bulk of our population could not afford to pay their medical attendant at each visit. The answer is obvious: England is the richest country in the world; there can, therefore, be no reason why the inhabitants of England should not do, in this respect, what is done by those of France, Spain, Italy, and we believe all other European countries. It may also be suggested that if it be not convenient to the patient to fee the doctor at the time, it is probably still less convenient to the latter to wait for his money—for we are a proverbially poor profession all the world over.

In chap. viii., "On Attendance on Professional Persons," Mr. Banks objects to the notion entertained by many that medical practitioners are bound in duty to prescribe gratuitously for their brethren and their families. He admits that there are many circumstances which should call forth our liberality, and induce us to decline the proffered remuneration; but thinks that where one medical man attends another, or the near relative of another, during an illness, etiquette requires that the offer of payment should be made, leaving its acceptance discretionary. We cannot agree with this. One medical man has assuredly no claim to the gra-

tuitous services of another, as a matter either of legal or of moral right ; but we think every man endowed with any refinement of feeling would decline remuneration from a professional brother or a member of his household, under all circumstances. When a non-professional person consults a medical practitioner, he does so in the belief that the latter has knowledge and skill in certain matters of which he is himself ignorant, and that the exercise of these, in his behalf, is essential to his well-being and entitled to compensation at his hands ; but when one medical practitioner calls for the aid of another, in his own case, a disparity of knowledge and skill cannot, in courtesy at least, be supposed to exist between the two professors of the same art, and we should, therefore, for our own part, always decline any remuneration from a professional brother, because our acceptance of it would seem to place him in the position of one who knew less of medicine than ourselves. This may appear rather a metaphysical view of the subject ; but we believe that, on near inspection it will be found to indicate the real point of delicacy—and, as before observed, the question is one of *delicacy*, not of *right*. Again, when we attend a member of the family or household of another practitioner, we attend *in his stead*, and as he would not receive remuneration in such a case, it would be in some sort illogical as well as indelicate to put ourselves on a different footing. With regard to the families of deceased practitioners this reasoning is no longer applicable ; but still we think it is a graceful tribute of respect to the memory of one with whom we have been united in the freemasonry of science, to exercise gratuitously towards his nearest kindred the art which he once practised, or should in charity be presumed to have practised, with honour and usefulness. It appears to us, also, that there would be a degree of coarseness, a want of sentiment if not of feeling, in reminding the survivors of their loss, by making our own relation to them less cordial than it would formerly have been. If it be indelicate to accept, it can be scarcely judicious to offer remuneration under the foregoing circumstances. We have indeed known individuals, with more chivalry than judgment, who have been highly offended at such an offer from a fellow-practitioner. This, however, is ridiculous : money is such a precious commodity that when a man offers it to us (unless as a bribe) he must needs have good intentions towards us ; and it would therefore be both foolish and ill-natured to be angry with him for so doing.

Chap. ix. treats of “ Remuneration for Prescriptions and Medical Certificates.” Our author here animadvert justly on the impropriety of a patient’s asking a general practitioner to give him the prescription for the medicine he is taking without offering to fee him for it.

This is one of the many mean advantages which vulgar-minded persons are wont to take of the profession, and which the latter is generally too little inclined to resist. Liberality can never consist in allowing ourselves to be cajoled ; and we fear that what frequently passes under this name among certain of our brethren, is nothing more than a sneaking submissiveness and dejection of spirit, arising from the conjoint effects of poverty, excessive competition, the consciousness of an anomalous position in society from the union of a profession with a trade, and other causes, which diminish self-respect, and by a necessary consequence en-

courage impertinent freedom and unreasonable exaction. Mr. Banks further protests against the injustice of expecting practitioners to give certificates relating to health, gratuitously. Here also we, for the most part, agree with him. A medical certificate is, to all intents and purposes, a professional opinion on a case formally delivered in writing; and as such, is as well entitled to a fee, as an opinion orally delivered at the bed-side of a patient. It should also be remembered, that to record in writing, an opinion on the state of health of an individual, is sometimes no pleasant task; first, because in case of the smallest error of judgment, it lays us open to public animadversion; secondly, because we may feel ourselves bound in conscience to render a less favorable account of a person's health than he may himself desire; and hence we run the risk of giving grievous offence, however unreasonable it may be that we should incur wrath, for stating what we believe to be true, when publicly called on to do so. It may be added, that it is not usual for members of other professions to give gratuitous certificates relating to matters with which they are conversant. For all these reasons, we think medical practitioners should not be expected to give certificates without being feed for their trouble, except in the case of poor persons to whom the certificate may be of consequence but who are not in a condition to pay for it.

In chapters xii. and xiii., Mr. Banks considers certain points of professional morality arising out of cases where a practitioner is accidentally sent for to the patient of another, or where a former practitioner has been unhandsomely dismissed. We do not think that any rule can here be of much use, except the great christian law, of doing as one would be done by: whoever adheres to this, and has a moderate degree of judgment to guide his principle, cannot err materially. Our author concludes his remarks on these subjects with a most singular, and if correct, most alarming announcement; namely, that it is all up with the public morals throughout the world, unless the medical profession take them under their protection! It appears that governments, hierarchies, and schoolmasters do infinitely more harm than good, and make us worse than we should be without them. The doctor is your only moralist.

"Alas! thou poor Morality! If thou art deserted and forsaken by the only men capable of throwing a shield of protection around thee, and infusing new vigour into thy spirit, the members of the medical profession, what hope hast thou? Nay: despair, and die!" (p. 53.)

We confess we tremble at the approaching alternative of medical supremacy or universal turpitude, and earnestly suggest to our brethren that we should fit ourselves for our high destiny by mending our manners as fast as we can; for which, to speak honestly, we think there is considerable room.

Chapter xvi. is on "Keeping Shops." Our author here maintains that the circumstance of keeping a shop does not derogate, in any degree, from the personal respectability of a practitioner of medicine. We admit this to be perfectly true with regard to the individual; at the same time we do not wish to disguise our conviction that shop-keeping is highly derogatory to the profession taken collectively. With the individual, it is often a matter of necessity; for a young general practitioner, who has nothing but his profession to look to for his maintenance, has scarcely

any other alternative; and he may possess, while standing behind his counter, greater talents and acquirements, a more honorable mind, and more elegant manners, than his fortunate neighbour who rejoices in an immunity from many-coloured bottles. But it cannot, we think, be disputed, that an active participation in trade of any kind tends to subvert that frame of mind which befits a member of a learned profession. We apprehend also that it will be long ere the public mind is dispossessed of the prejudice (for such it unquestionably is) which assigns to the shop-keeper a lower station in society than to many another man whose calling may be less useful, and whose personal claims to respect may be far inferior.

Chap. xvii. is on the "Connexion between Practitioners and Chemists." Mr. Banks sees no more impropriety in a physician or other medical practitioner prescribing at a druggist's shop for an annual consideration than in his attending at a dispensary for a fixed salary; and conceives the only difference to be that in the one case he is engaged in the business of a private and in the other of a public dispensary. Neither can Mr. Banks see anything unprofessional in a physician's holding a share in a druggist's business, provided he does so openly and without disguise. He thinks there is no virtual difference between this and his holding a share in a railroad, a bank, or a trading company. There is a show of reason in this; but we think that Mr. Banks has entirely overlooked the real objection to every kind of confraternity between medical practitioners and druggists. This objection we conceive to be that such unions tend to strengthen, in the public mind, that identification of the profession of medicine with the drug-trade which has long exerted so baneful an influence on medicine in this country. It tends in short to *perpetuate the apothecary*, which is the very thing that enlightened men in all classes of the profession wish to abolish. And it tends to perpetuate the evil in a more absurd form than ever: the apothecary, as he now stands, is half doctor and half druggist, which is anomalous enough, yet he is but one man; whereas an association of a physician with a druggist forms a sort of Siamese-twin apothecary—a piece of professional teratology which nobody knows what to make of.

We have already devoted so much space to Mr. Banks's production that we must refrain from commenting on some other subjects on which he has descanted, as that of dispensaries; the conduct to be observed by and towards pupils, assistants, and junior practitioners; solicitation, meaning thereby the beggarly and disreputable practice of leaving cards and calling at houses in the hope of getting patients, &c. These topics are handled by our author with more or less judgment, and we fear we must add with the same occasional discursiveness and intermixture of fustian, which we have had to complain of in those parts of the book which have been more particularly noticed. On the whole, though we cannot compliment Mr. Banks on his talents as an author, we may nevertheless recommend his work to the perusal of our readers. Its general spirit is praiseworthy, and the adoption of some of its precepts would materially improve the state of the profession.

ART. XII.

A Popular Treatise on the Kidney; its hitherto Unknown Functions, and its Diseases in connexion with the Circulating Animal Oils, &c.
By GEORGE CORFE.—London, 1839. 8vo, pp. 304.

THIS work, from the pen of Mr. George Corfe, the resident medical officer to the Middlesex Hospital, is one of the most singular modern productions that it has been our lot to peruse. It may safely be pronounced a psychological curiosity, and would seem to have been thrown upon the present century by a sort of hap-hazard. It certainly can be classed only with the writings of the Theosophists and Cabbalists of the fifteenth and sixteenth centuries.

The work is written in a rather obscure style; and from its defective arrangement the views of the writer are understood only with much difficulty. It would be almost impossible as well as unprofitable to our readers to attempt anything like an analysis, but we may mention that it is divided into ten parts, under the titles of: 1. Divine Acceptance—ancient and modern writers on the Kidney. 2. Comparative Anatomy of the Kidney. 3. Anatomy; the Oil-tubes, &c. 4. Anatomy; the Blood. 5. The Circulating Animal Oils. 6. Animal Heat. 7. Salts, Alkalies, Acids, &c. Desultory Remarks. 8. Collateral Views of the Kidney. 9. Advice, &c. on Healthy Urine. 10. Diseases of the Kidney, &c. These parts are divided into chapters in a very arbitrary manner.

We shall give as brief and concise a view of the author's physiological doctrine of the kidneys as possible. The mass of fat in which the kidney is imbedded the author dignifies by the name of the "log of oil." Anatomists all know that the fat in question passes around the pelvis and vessels of the kidney, and that a portion of it also occupies the centre of the gland. No one that we are aware of has hitherto supposed that this fat performs any particular function in the secretion of urine, but such, according to Mr. Corfe, is the case. From the fat immediately surrounding the pelvis, seven divisions or branches pass off between the calyces, and these are denominated the "seven semicircular oil-tubes of the kidney." From the seven principal oil-tubes other smaller ones arise, which may perhaps vary from 80 to 100 in number.

"From the whole series of these large and small 'semicircular oil-tubes' come off an innumerable set of tubes, shaped with barbs and barbules, like a feather; I shall therefore term these 'THE FLOCCULENT FEATHERY OIL-TUBES' of the kidney. They may be described as coming off from the ends of the seven (semicircular oil-tubes), and as hanging about like so much down or shaggy substance when properly prepared for demonstration. They are dispersed throughout the whole medullary and vascular substance of the gland, and compose at least three fifths of the bulk of the organ. They may be traced to within one quarter of an inch of the surface of the kidney where they are lost in minute terminations." (p. 67.)

The "flocculent feathery oil-tubes" thus described, and of which engravings from the different divisions of the animal kingdom are given, the author believes to be the same with the "glandular ducts" of Bertin, the "white cortical ducts" of Ferrein, and the "serpentine ducts" of Müller.

Their essential character, according to Mr. Corfe, is that they are incapable of being injected either from the renal artery or vein or from the ureter.

Such are the new anatomical results at which the author, so far as we can collect, imagines he has arrived. We very much doubt, however, whether his views will receive the assent of anatomists; and though we have not reexamined the anatomy of the kidney, in relation to this subject, yet we will venture to question whether these "feathery oil-tubes" are anything else than an interstitial cellulo-vascular tissue analogous to the capsule of Glisson in the liver.

Let us now return to the physiology of the kidney as propounded by our author.

On this subject our views have hitherto been entirely wrong, according at least to Mr. Corfe, who shall speak for himself.

"The nature and office of the kidney is first to act in the highest temperature of animal heat, and to thrive in unctuous warmth..... Secondly, the office of the kidney is primarily, to receive oil within its bosom for the purposes of purifying that oil, and of lubricating the parts, and for the receiving of the DRAINS, or, as they are called, secretions from that oil, in order to discharge them in an excrementitious form from the animal economy. The office of the kidney is secondarily to receive the drains also, or as they are called, secretions from venous blood, and not from the rich life-giving arterial blood, as is universally supposed. And, thirdly, I maintain that the oil so purified then passes into the circulation by the trunks of the veins within the kidney and circulates through the system." (p. 29.)

The following is stated to be the mode in which the secretion of urine is accomplished. The "log of oil" before alluded to is stated to be

"A series of cells, all communicating one with another, and containing a large quantity of oil when warm, or suet, as we term it, when cold. The cells that are farthest from the kidney are the largest and the most dense of the whole 'log.' As the oil drops from cell to cell it passes through partitions thinner and thinner, or sieves finer and finer, until the network is so delicate around and within the gland, that it requires a magnifying power to demonstrate it. If a small portion of oil is taken out of the adipose membrane most remote from the kidney, and smeared over the hand, it runs lumpy and hard over the skin. If a portion, however, be removed from the minute cells, just as it is entering into the bosom of the kidney, and similarly treated, it runs over the hand like tallow taken from under the flame of a candle. If the grosser lumps be taken, again, and held over a spirit lamp, it spurtles and burns with a crackling noise, as though it contained water and salt. But, on the contrary, a portion from the bosom of the kidney burns silently, rapidly, and is truly PURE OIL." (p. 64.)

The changes in the peri-renal fat, thus described, are stated by our author to depend on its excrementitious or watery and saline portions having been absorbed by the "flocculent feathery oil-tubes" in connexion with it. This excrementitious fluid becomes mixed in the urinary ducts with the secretion or drain from the *venous* blood of the kidney.

"The combined fluids then constitute urine, and not before." (p. 37.)

"The (renal) artery is merely a nutrient vessel and nothing else. It answers in all its characters to the hepatic or nutrient artery of the liver." (p. 77.)

The author observes that the fact of urine being discovered and pronounced to be a secretion from animal oil, will perhaps at first be re-

ceived with something of a similar sensation to that occasioned by the discovery of the circulation by Harvey and that of vaccination by Jenner!

He lays two or three facts before the reader, that he may pause before any judgment is pronounced.

"First, that the tallow-makers out of 200 gallons of melted fat draw off upwards of nine gallons of water. Secondly, that, according to the researches of Chevreul and Braconnot, animal fat consists of a spermaceti-like substance, of oil, ammonia, potash, lime, and iron, which very substances are found under certain modifications in the urine. Thirdly, that the purified oil in the bosom of the kidney is found to have spent its watery and saline particles, and consequently burns silently." (p. 71.)

Various reasons are alleged at pages 88, 91, why the urine cannot be a secretion from arterial blood; but for these we must refer the reader to the work itself. The analogy of the liver is referred to in the following manner, as further corroborative of the views taken by the author:

"The physiology of the kidney exactly corresponds with my view of that of the liver. There are but few slight shadows of difference between them. Portal blood, from which bile is separated, is blood into the composition of which oil largely enters. This oil is derived from the caul, the mesentery, the intestines, and even, as I doubt not, from the blood itself. The portal blood is a fluid wholly for the secretion of bile, as Mr. Kiernan most ably demonstrates. The hepatic artery is exclusively a nutrient artery, and the hepatic vein receives both arterial and portal blood. The kidney, however [differs in having], its own distinct departments for the offices of secretion from oil and secretion from blood." (p. 79.)

Mr. Corfe "doubts not but that future researches will prove that the whole glandular system of secretion is effected through the media of oil and venous blood." (p. 89.)

Such are the doctrines which are propounded to us as a new physiology of the kidney. Without asserting that they are altogether destitute of plausibility, we must say that the author has altogether failed in establishing them.

We have gone over much tedious ground in order to present to our readers as condensed and correct a view of the author's doctrines as his ill-arranged book will allow of. Our principal object in doing so is to exhibit some of the devious paths into which a neglect of the inductive method of philosophizing will lead us.

It may perhaps be worth while to trace, so far as we are able, the source of this new physiology of the kidney. In the Mosaic ritual "the two kidneys and the fat that is upon them" (Exod. xxix., Levit. iii., &c.) formed an essential part of the various offerings which were ordained for the temple worship. Mr. Corfe in his first chapter accordingly quotes all the passages in which mention is made of these parts; and we have little doubt but that his book has originated in a desire to establish a pre-eminence of the "kidneys and their fat" in a physiological sense, which may correspond to their apparent spiritual and mystical pre-eminence. The following quotations we think support this assertion:

"The ALMIGHTY CREATOR of man has, in my mind, bestowed great honour on that inward part the kidney, in selecting it to be cut out of brutes and offered up on his own holy altar with the kindred fat and caul or midriff, as a typical

sacrifice. Most important must that organ be in animal life which is so PICKED OUT BY THE DIVINE MAKER, who wound its every thread from his own finger." (p. 191.)

"By the kidneys it appears that the emblem of life, or the seat of vitality, is intended by the INFINITE MIND to be represented.

"When the LORD speaks of the quintessence of wheat, or its best and most valuable part, its life, its vital principle, then the LORD the SPIRIT expresses it by the kidneys of wheat, and the fat of the kidneys of wheat.—Deut. xxxii., Ps. cxi.-iii." (p. 187.)

Having in a previous place made the extraordinary statement that "vital substance is the kidney, and vital fluid the oil," (p. 114,) the author remarks :

"That very much indeed of the vital principle is locked up in the kidney of brute and rational animals, I believe, simply because I infer it from the eternal word of the GOD OF TRUTH and unerring wisdom. Men are, alas! so puffed up with earthly wisdom that they draw their inferences after the manner of carnal men. In proud contempt of all beside, they leave the mighty shadowings of God's almighty pencil in his tracery of the fabric of the human body, as beheld in His marvellous scriptures, by the microscopic eye of illuminated spiritual intellect, to the methodists, fanatics, and visionaries." (p. 188.)

Again,

"To my imagination the kidneys, or I shall say the kidney, sits a sovereign in animal life in the very centre of its kindred body. With one arm, as it were, she receives the oil, and with the other she rejects its refuse. The kidney sits with her back against the reins or loins, and hence she derives her strength; so in Christ all men have life, whether carnal or spiritual, &c. She derives her moisture not so much from the multitude of oily channels within herself as from the gracious and copious insinuating anointings of the fine unctuous matter all around and about her. Have we not here some shadowings of the natural man? He has not by nature one atom of grace, yet that oil of rich mercy is copiously shed," &c. (p. 191.)

"It has been seen in some of the foregoing pages of this work that the peculiar secretion of the kidney is therein maintained to consist of parts drained off from oil and venous blood. It is most interesting to observe how the eternal word of truth appears to join these two important matters together. Oil and blood in type of blood and wine are continually placed side by side. Thus the fat of the kidney of wheat is close upon the blood of the grape.—Deut. xxxii." (p. 180.)

Passing over numerous other strange similitudes and analogies which Mr. Corfe's prolific "imagination" detects between things spiritual and natural, we shall conclude our notice of his work by observing that we never before met with so striking an illustration of Lord Bacon's remark, that "from the wild mixture of divine things with human, arises not only fantastical philosophies but heretical religions;" and again, "that men by supposing such a perfection in the scriptures, as that all philosophy should be derived from them, do not, as they imagine, honour but rather disgrace and pollute them."

ART. XIII.

On the Preparations of the Indian Hemp, or Gunjah (Cannabis Indica), their Effects on the Animal System in Health, and their Utility in the Treatment of Tetanus and other Convulsive Diseases. By W. B. O'SHAUGHNESSY, M.D., Professor of Chemistry in the Medical College, Calcutta.—Calcutta, 1839. 8vo, pp. 46.

THIS pamphlet contains a detail of facts of a very important kind, which, we doubt not, will cause a great sensation among the members of the profession throughout the world. We feel it, therefore, to be a duty to give as full an account of its contents as our space will permit. It will appear clearly from what we shall state that Dr. O'Shaughnessy has the merit of having added to *our* materia medica a drug of great and unequivocal powers, and, probably, a remedy of marked efficacy in diseases hitherto the most unmanageable. For the sake of accuracy, in a matter of so much consequence, we shall avail ourselves, as much as possible, of the author's own words, and endeavour to communicate all the more important facts in a series of extracts from his pamphlet.

"The narcotic effects of hemp are popularly known in the south of Africa, South America, Turkey, Egypt, Asia Minor, India, and the adjacent territories of the Malays, Burmese, and Siamese. In all these countries hemp is used in various forms, by the dissipated and depraved, as the ready agent of a pleasing intoxication. In the popular medicine of these nations we find it extensively employed for a multitude of affections. But in western Europe its use either as a stimulant or as a remedy is equally unknown. Much difference of opinion exists on the question, whether the hemp so abundant in Europe, even in high northern latitudes, is identical in specific characters with the hemp of Asia Minor and India. The extraordinary symptoms produced by the latter depend on a resinous secretion with which it abounds, and which seems totally absent in the European kind. The closest physical resemblance or even identity exists between both plants; difference of climate seems to me more than sufficient to account for the absence of the resinous secretion and consequent want of narcotic power in that indigenous in colder countries.

"*Chemical Properties.* In certain seasons and in warm countries a resinous juice exudes and concretes on the leaves, slender stems, and flowers. Separate and in masses it constitutes the *churru* of Nipal and Hindostan, and to this, the type or basis of all the hemp preparations, are the powers of these drugs attributable. The resin of the hemp is very soluble in alcohol and ether; partially soluble in alkaline, insoluble in acid solutions; when pure of a blackish-gray colour; hard at 90°; softens at higher temperatures and fuses readily; soluble in the fixed and in several volatile oils. Its odour is fragrant and narcotic; taste slightly warm, bitterish, and acrid. The dried hemp plant which has flowered, and from which the resin has not been removed, is called *gunjah*. It yields to alcohol twenty per 100 of resinous extract, composed of the resin (*churru*) and green colouring matter (*chlorophylle*). Distilled with a large quantity of water, traces of essential oil pass over, and the distilled liquor has the powerful narcotic odour of the plant. The *gunjah* is sold for smoking chiefly.

"*Popular Uses.* The preparations of hemp are used for the purpose of intoxication as follows: *Sidhee*, *Subjee*, and *Bang* (synonymous) are used with water as a drink, which is thus prepared. About three tola weight, 540 troy grains, are well washed with cold water, then rubbed to powder, mixed with black pepper, cucumber and melon seeds, sugar, half a pint of milk, and an equal quantity of water. This is considered sufficient to intoxicate an habituated

person. Half the quantity is enough for a novice. From either of these beverages intoxication will ensue in half an hour. Almost invariably the inebriation is of the most cheerful kind, causing the person to sing and dance, to eat food with great relish, and to seek aphrodisiac enjoyments. In persons of a quarrelsome disposition it occasions, as might be expected, an exasperation of their natural tendency. The intoxication lasts about three hours, when sleep supervenes. No nausea or sickness of stomach succeeds, nor are the bowels at all affected; next day there is slight giddiness and vascularity of the eyes, but no other symptom worth recording.

"*Gunjah* is used for smoking alone, one rupee weight, 180 grains, and a little dried tobacco are rubbed together in the palm of the hand with a few drops of water. This suffices for three persons. A little tobacco is placed in the pipe first, then a layer of the prepared *gunjah*, then more tobacco, and the fire above all." (pp. 1-8.)

The remarkable qualities of this drug seem to have been well known to the Arabian and Persian physicians, both ancient and modern; but Dr. O'Shaughnessy could nowhere find any account of its mode of administration as a remedy, of its dose, or of its exact therapeutic effects. The first step, therefore, was to institute an extensive series of experiments with it on animals. These satisfactorily exhibited at once the power of the drug (chiefly in producing intoxication and ultimate insensibility), and its safety.

"In none of these or several other experiments was there the least indication of pain or any degree of convulsive movement observed. It seems needless to dwell on the details of each experiment; suffice it to say that they led to one remarkable result—that while carnivorous animals and fish, dogs, cats, swine, vultures, crows, and adjutants invariably and speedily exhibited the intoxicating influence of the drug, the graminivorous, such as the horse, deer, monkey, goat, sheep, and cow, experienced but trivial effects from any dose we administered. Encouraged by these results no hesitation could be felt as to the perfect safety of giving the resin of hemp an extensive trial in the cases in which its apparent powers promised the greatest degree of utility." (p. 20.)

We shall now give a brief extract of the result of Dr. O'Shaughnessy's experience of this remedy on the human subject; noticing, in the first place, the preparations used by him and their doses.

"The *resinous extract* is prepared by boiling the rich adhesive tops of the dried *gunjah* in spirit (sp. gr. 836), until all the resin is dissolved. The tincture thus obtained is evaporated to dryness in a vessel placed over a pot of boiling water. The extract softens at a gentle heat, and can be made into pills without any addition.

"The *tincture* is prepared by dissolving three grains of the extract in one drachm of proof spirit.

"*Doses, &c.* In *tetanus* a drachm of the tincture every half hour until the paroxysms cease or catalepsy is induced. In *hydrophobia* I would recommend the resin in soft pills, to the extent of ten to twenty grains to be chewed by the patient, and repeated according to the effect. In *cholera* ten drops of the tincture every half hour will be often found to check the vomiting and purging, and bring back warmth to the surface. My experience would lead me to prefer *small* doses of the remedy in order to excite rather than narcotize the patient." (p. 37.)

Rheumatism. The remedy was tried in several cases both acute and chronic, but, as appears to us, without very satisfactory results. In one of the cases the most marked catalepsy was produced, besides the usual intoxicating effects.

"In several [other] cases of acute and chronic rheumatism admitted about this time, half-grain doses of the resin were given, with closely analogous effects: alleviation of pain in most, remarkable increase of appetite in all, unequivocal aphrodisia, and great mental cheerfulness. In no one case did these effects proceed to delirium, nor was there any tendency to quarrelling. The disposition developed was uniform in all, and in none was headach or sickness of stomach a sequel of the excitement." (p. 24.)

Hydrophobia. This was an undoubted case of the disease and was full-formed before the remedy was given. The results are certainly most cheering, although death was not averted.

"By his own desire water was brought in a metallic vessel, which he grasped and brought near his lips; never can I forget the indescribable horrors of the paroxysm which ensued. It abated in about three minutes, and morbid thirst still goading the unhappy man, he besought his servant to apply a moistened cloth to his lips. Intelligent and brave, he determinately awaited the contact of the cloth, and for a few seconds, though in appalling agony, permitted some drops to trickle on his tongue, but then ensued a second struggle, which, with a due share of the callousness of my profession, I could not stand by to contemplate. Two grains of hemp resin in a soft pillular mass were ordered every hour; after the third dose he stated that he felt commencing intoxication; he now chatted cheerfully on his case, and displayed great intelligence and experience in the treatment of the very disease with which he was visited. He talked calmly of drinking, but said it was in vain to try, but he could suck an orange; this was brought to him, and he succeeded in swallowing the juice without any difficulty. The hemp was continued till the sixth dose, when he fell asleep, and had some hours' rest. Early the ensuing morning, however, Mr. Siddons, my assistant, was called up to him, and found him in a state of tumultuous agony and excitement. The hemp was again repeated, and again by the third dose the cheering alleviation of the previous day was witnessed. He ate a piece of sugar-cane and again swallowed the juice; he partook freely of some moistened rice, and permitted a purgative enema to be administered. His pulse was nearly natural, the skin natural in every respect. His countenance was happy.

"Four days thus passed away, the doses of hemp being continued. When he fell asleep on waking the paroxysms returned, but were again almost immediately assuaged as at first. Meanwhile purgative enemata were employed, and he partook freely of solid food, and once drank water without the least suffering. But about 3 p. m. of the fifth day he sunk into profound stupor, the breathing slightly stertorous; in this state he continued, and without further struggle death terminated his sufferings at 4 a. m. on the 27th November." (pp. 24-6.)

Dr. O'Shaughnessy's remarks on this interesting case seem well warranted, namely, "that at least one advantage was gained from the use of the remedy—the awful malady was stripped of its horrors; if not less fatal than before, it was reduced to less than the scale of suffering which precedes death from most ordinary diseases." (p. 26.)

Cholera. The epidemic in a few cases of which the hemp was tried was mild, and the results are therefore inconclusive; but they are, as Dr. O'Shaughnessy says, "*promising*, and deserve the attention of the practitioner."

Tetanus. Several cases of the traumatic kind are recorded, which cannot fail to excite the highest expectations of the power of this remedy in this generally fatal disease.

In the first case, the disease supervened on dysentery from the action of a native moxa. Symptoms of tetanus occurred on the 24th Dec.,

and were well marked on the 26th, when (the case being considered hopeless) hemp was administered, at first in doses of two grains every third hour, afterwards of three grains every second hour. The usual intoxicating effects were produced, and the spasms were speedily mitigated, and at length finally ceased on the 6th Jan. The dysentery, however, proved fatal on the 23d.

"The *second case* was that of Chunoo Syce, in whom tetanus supervened on the 11th December, after an injury from the kick of a horse. After an ineffectual trial of turpentine and castor oil in large doses, two-grain doses of hemp resin were given on the 26th November. He consumed in all 134 grains of the resin, and left the hospital cured on the 28th December.

"*Third Case.* Huroo, a female æt. 25, admitted to the Native Hospital on 16th December, had tetanus for the three previous days, the sequel of a cut on the left elbow received a fortnight before. Symptoms violent on admission. Turpentine and castor oil given repeatedly without effect; on the 16th and 17th, three grains of hemp resin were given at bed-time. On the morning of the 18th she was found in a state of complete catalepsy, and remained so until evening, when she became sensible, and a tetanic paroxysm recurred. Hemp resumed, and continued in two-grain doses every fourth hour. From this time till the third hour tetanic symptoms returned. She subsequently took a grain twice daily till the 8th of February, when she left the hospital apparently quite well.

"Mr. O'Brien has since used the hemp resin in five cases, of which four were admitted in a perfectly hopeless state. He employed the remedy in *ten-grain doses* dissolved in spirit. The effect he describes as almost immediate relaxation of the muscles and interruption of the convulsive tendency. Of Mr. O'Brien's seven cases, four have recovered.

"In the Police Hospital of Calcutta, the late Dr. Bain has used the remedy in three cases of traumatic tetanus, of these, one has died and two recovered.

"A very remarkable case has recently occurred in the practice of my cousin, Mr. Richard O'Shaughnessy. The patient was a Jew, æt. 30, attacked with tetanus during the progress of a sloughing sore of the scrotum, the sequel of a neglected hydrocele. Three-grain doses were used every second hour, with the effect of inducing intoxication and suspending the symptoms. The patient has recovered perfectly, and now enjoys excellent health. (p. 31.)

We think no unprejudiced reader of Dr. O'Shaughnessy's cases of tetanus can hesitate to concur with him in his estimate of the remedy employed in them. "The preceding facts," he says, "seem unequivocally to show that when given boldly and in large doses, the resin of hemp is capable of arresting effectually the progress of this formidable disease, and in a large proportion of cases of effecting a perfect cure;" and we are, moreover, after reviewing the whole of the evidence here submitted to us, willing to join with him in the belief, "that in hemp the profession has gained an anti-convulsive remedy of the greatest value."

We regard the profession as under great obligations to Dr. O'Shaughnessy for the publication of the important facts detailed in the pamphlet; and we hope this obligation will be not the less willingly admitted that the author shows as much modesty in preferring his claims to notice, as he exhibits philosophical caution in his experiments and in drawing conclusions from them.

ART. XIV.

De Necessitate Aëris Atmosphericæ ad Evolutionem Pulli in Ovo incubito. Dissertatio Inauguralis Physiologica. Auctore THEOD.

SCHWANN.—Berolini, 1834. 4to, pp. 32.

On the Necessity of Atmospheric Air for the Evolution of the Chick in the Incubated Egg. By TH. SCHWANN.—Berlin.

WE are induced to present our readers with a brief notice of this Thesis, although it is not now of very recent date, in consequence of the rather startling result of the experiments lately performed by Mr. Towne, (Guy's Hospital Reports, Oct. 1839; and Br. and For. Med. Review, Vol. IX. p. 396.) It is maintained by that gentleman that the access of oxygen to the contents of the egg, through the pores of the shell, is not, as commonly believed, necessary to its development; since the shell may be enveloped in coatings which would seem impervious to gas, without the slightest interruption or retardation of the usual processes. Moreover he affirms that the *folliculus aëris* within the shell remains unbroken until the nineteenth day, when it supplies the chick with the means of filling its lungs with air. This last proposition we think reasonable; it is the former one to which we take exception.

Mr. Towne's experiments were made by laying upon the shell several coats of albumen rendered consistent by evaporation; and over these were placed several layers of paper soaked in albumen until they were sufficiently soft to be applied closely to the convex surface. "The whole," he says, "formed a covering so thick and horny, that I felt convinced it was entirely impermeable." On this point we take leave to differ from Mr. Towne. Experience has shown that many substances which appear entirely destitute of pores are susceptible of permeation by gases; especially when gases of different kinds are in contact with their opposite sides. A solid plug of plaster of Paris, three quarters of an inch thick, is traversed by hydrogen with a rapidity truly wonderful, if oxygen or atmospheric air be on the other side of it; and we can readily conceive that even Mr. Towne's horny envelope was susceptible of slow permeation by oxygen, when carbonic acid had to be disengaged from the egg. The experiment proves nothing, until it is demonstrated that the surrounding air undergoes no change. Until this is shown we consider ourselves quite at liberty to affirm that the envelope is permeable; since all unexceptionable experiments concur in showing that the evolution of the chick is prevented by any means which *certainly* prevents the passage of atmospheric air through the shell. We do not think the coatings of oil-paint, placed by Mr. Towne in some of his experiments outside the layers of albuminized paper, a more perfect security than the first envelope. The paint was composed of white lead, with a large proportion of sugar of lead used as a drier. "This," says Mr. Towne, "I did with the double intention of offering an additional obstruction to the air, and also to prove whether the paper was or was not entirely sufficient for this purpose; concluding that if it were not the fume from so noxious an application must inevitably prevent the progress of incubation." Now on the first point we remark that the rapid drying of the coats of paint renders it to our minds extremely probable that such a number of minute cracks would be formed in each layer, as to render the whole pervious to

air; and on the second we would observe that no such noxious fumes as Mr. Towne supposes would be exhaled from his composition. The matter will be very easily tested. Let Mr. Towne experiment upon one of Professor Graham's diffusion-tubes instead of upon eggs; let him tie his layers of paper over the extremity, and put his coats of oil-paint over these, and then fill the tube with carbonic acid gas; and we venture to affirm that, after some days, he will find that the contents of the tube have been changed by the exomose and endomose of gases through its closed extremity.

A much more perfect means of excluding the air from the interior of an egg is that which is commonly practised in this country—the rubbing of the shell with grease. This is done for two purposes: either to prevent decomposition, when it is desired to preserve the eggs for some time, or to prevent chickens from being reared from them. As to its success in both these objects we can bear personal testimony. In regard to the first, the effect will be more complete the sooner the application is made after the egg has been laid. We have eaten eggs, thus prepared in England, off Barbadoes, after being at sea for a month, which were certainly superior to fresh eggs brought off from the island. Moreover it is a common practice with farmers' wives in the country to employ the same application as a means of preventing those who purchase their eggs from rearing from them some peculiar breed of poultry valued by the seller; and we have been assured by competent authority that this plan is never known to fail. Considering the quantity of oily matter already contained in the egg, we cannot imagine that the application of simple grease can exert any noxious effect upon the embryo; more especially since its power of preventing decomposition is so remarkable.

Evidence yet more satisfactory, however, is derived from experiments upon the artificial incubation of eggs in irrespirable but innocuous gases. Hydrogen and nitrogen are the only ones which can be regarded in this light; carbonic acid has a manifestly deleterious effect upon the embryo as upon the adult. Among all the experiments of this nature which have yet been made, we believe those of Schwann to be the most unexceptionable, both in regard to the plan on which they were devised, and the care with which they were conducted. The eggs were placed in a capacious glass vessel, to which a brass top was accurately fitted. The non-permeability of this vessel had been tested by leaving it for three days exhausted of air. The brass cover was fitted with two stopcocks: one of which communicated with a reservoir of gas, the purity of which was carefully ascertained, and the other with an air-pump. The air was then exhausted; and thus not only the atmosphere surrounding the egg was removed, but the air contained within it. That this process was not in itself deleterious, however, was shown by the fact that eggs submitted to it were capable of proceeding in their subsequent development, if again exposed to atmospheric air. Into the exhausted receiver nitrogen or hydrogen gas was then admitted; and this was again drawn out by the air-pump. This process was repeated five or six times; so that the complete displacement of the oxygen was secured. The glass vessel was then placed in an apparatus adapted to maintain its temperature at the requisite height without intermission. The following is the result of numerous experiments:

No eggs went through their full development; but in the greater number the primary changes had occurred; so that the presence of oxygen seems necessary, not so much to give the stimulus to the development as to maintain it. It appeared that the separation of the germinal membrane into the serous and mucous layers, and the formation of the *area pellucida* might thus take place; but in no instance was the formation of the vascular layer perceived. The point at which they stopped is that which eggs incubated in atmospheric air reach about the fifteenth hour. But it would appear that eggs incubated in hydrogen do not lose their vitality at that period; for, if removed at the twenty-fourth hour into atmospheric air, their development may continue; though this will not occur if the change be delayed until about the thirtieth hour. It would seem, therefore, as if the development is retarded during its continuance, as well as finally checked, by the want of oxygen. The liberation of a small quantity of carbonic acid was observed in all the experiments; and this was found to take place from the very beginning of the process; and not to be a product of decomposition.

Further experiments on this subject are much wanting, to determine the changes which are really produced in the surrounding atmosphere during incubation in gases containing oxygen; and we trust that this deficiency will not long remain unsupplied. We call Mr. Towne's attention to this point.

ART. XV.

The Library of Medicine. Arranged and edited by ALEXANDER TWEEDIE, M.D., F.R.S. Vols. I-II. Practical Medicine.—London, 1840. 8vo, pp. 440, 353.

THE plan of this work is taken from that of the Cabinet Cyclopædia of Dr. Lardner, and is, on the whole, a good one. Instead of the subjects being published in alphabetical order, as in most other encyclopædias and dictionaries, the different subjects which have more or less relation to one another, are arranged in groups and issued in separate volumes. Thus, in place of retracing his own footsteps in the Cyclopædia of Practical Medicine, or of following those of Dr. Copland in his Dictionary, by proceeding from A to B onwards, Dr. Tweedie collects into his first volume all the articles on *fever*, and into his second all those on *diseases of the nervous system*. He purposes to proceed in the same manner with the remaining articles, so as to collect, as far as it can be done, the allied subjects into volumes, and then group the volumes into series, according to the general nature of their contents, as of practical medicine, of physiology, &c. Dr. Tweedie's Library, like Dr. Lardner's Cyclopædia, further differs from the alphabetical collections in omitting entirely the lexicographical subjects and likewise a vast number of minor articles which are always contained in such works, and are scarcely to be found elsewhere. On this account, the range of information to be found in the work before us is much smaller than that in the Cyclopædia or Dictionary of Practical Medicine. Whether such a work as the present was wanted in the actual state of medical literature in this country, is a question which more concerns the publishers and proprietors than us.

We are of opinion that there can never be too many good books; and if the Library of Medicine comes under this category, it will not trouble us to know whether it may prove a successful or an unsuccessful mercantile speculation.

In any notice which we may take of the different volumes of this work as they appear, we shall, of course, hold the Editor no further responsible for the contents than as regards the selection of the writers and the arrangement of the subjects; but we have a small general quarrel with the work which we wish to settle *in limine*, and for the cause of which, we presume, the Editor is alone responsible. We refer to the paper and print—neither of which is what we think it should have been. The paper is not good enough, and the type is decidedly too small and the lines too crowded. Surely the learned Editor must have forgot that he, as well as ourselves, was past the years of aquiline or lyncean vision, else he never would have spread such amaurotic pages before his contemporaries. Youths of twenty may voyage through this perilous sea of ink in safety, but readers of double this age had better be content with gathering the pebbles on its shores. Or, had this *muscæ-volitantes*-type been inevitable, if our good Editor had condescended to break his lines in two, as the Cyclopædia did, as Hooper and Cooper did, as Copland did, as the Gazette and Lancet do, perhaps we might have been content, out of consideration for the student's pocket; but verily these broad, black pages are too much for our editorial eyes and patience.

In our next Number we hope to give a somewhat detailed account of the contents of these volumes. Our present engagements will only allow us to state generally that the articles—as far as our eyes have permitted us to examine them—are, on the whole, very good, and the Library of Medicine, consequently, a very good book, which we recommend to the attention of all our readers—under thirty. Before concluding, however, we will bestow a few words on the first two articles of the work, the INTRODUCTION by Dr. Symonds, and INFLAMMATION by Dr. Alison, as they are, in some respects, complete in themselves, and bear only a general relation to the whole work.

These two articles comprise, we presume, all that this series is intended to contain of general pathology. Of the value of these essays in themselves we have a high opinion; but it is impossible to overlook their great disproportion to each other and to the rest of the work. We feel sure that to neither of these able writers is the fault to be attributed; but that it was inherent in the original plan.

The introduction is intended to “facilitate the study of diseases, by exhibiting to the reader a brief view of the more simple forms of morbid action, before leading him to the investigation of those complex phenomena which are the subjects of nosology.” The particular objects dwelt upon by Dr. Symonds are: 1, the nature of disease in the abstract; 2, the leading principles which determine the association and succession of morbid phenomena; and 3, the elementary forms or *proximate principles* of disease. Now of all these, a summary (and, considering its narrow limits, a very full and comprehensive one,) is included within the space of fifty-one pages. Among the proximate principles, inflammation of course holds a distinguished place; and it is accordingly made the subject of a separate essay by Dr. Alison, which runs to the length of

sixty-one pages of closer print than the introduction. Now we should scarcely wish to curtail this valuable chapter of a single sentence; but we feel it right to ask why other morbid actions of equal rank, and only inferior in importance on account of their less frequent occurrence, are passed over with the very brief notice, which is all that the limits we presume to have been imposed upon Dr. Symonds enabled him to bestow upon them? We shall look in vain, we fear, for any corresponding amplification of his brief but excellent account of tubercle and tuberculous cachexia, carcinoma and cancerous diathesis.

On the advantage of referring details on these subjects as much as possible to one general head, we need scarcely enlarge. In regard to inflammation, this has long been the practice of writers both on medicine and surgery; and since the equivalent value of other morbid alterations has been understood, the exclusive study of inflammation as the "one thing needful" has given place, in the most enlightened among our instructors, to a more comprehensive survey of the elementary forms of disease. Such will be found in Dr. Elliotson's lectures. We much regret, therefore, that in a work professing to be in all respects on a level with the time, so injurious an error should find countenance.

Of the details of these essays we can at present speak only in a very cursory manner. The introduction will be read by the intelligent student with great pleasure; as he will feel that he is both acquiring information from it and arranging by its means in a systematic form many ideas that were previously floating loosely in his mind. Its great condensation, however, appears to us rather opposed to the design which the author had in view; and we are doubtful of its fitness to communicate to the beginner that merely elementary knowledge which he requires. There seems to us an occasional *arrest of development* in some of the ideas, calculated to excite the thinking faculties of the intelligent reader, who can work them out for himself; but to perplex the younger student, for whom their connexion requires to be more fully displayed.

Disease is first viewed as consisting of morbid actions or phenomena occurring singly; and the relations of these to the healthy state are briefly considered. It is then regarded as consisting of groups of such actions or phenomena; and the chief circumstances to which these actions owe their association or connexion, are very ably, though briefly, treated of. We are inclined to think that it would avoid confusion if the term *disease* were restricted to the latter signification; and some other term applied to the several morbid phenomena which constitute it. We are much opposed, too, to the use of the term *proximate cause* to designate the essence of the disease; especially when immediately associated, as by Dr. Symonds, with *remote causes*, which mean something entirely different. At any rate, the very different acceptation of the word *cause* in the two instances should be thoroughly explained. We are disposed to think, moreover, that to limit the meaning of the word *pathology* to the consideration of the proximate causes of disease, or, in other words, of the primary morbid actions themselves, to the exclusion of the remote causes, and of the effects resulting from these primary actions, gives a very imperfect view of its extent. It is as if in physiology we were to consider the individual actions occurring in the several organs, without tracing their dependence upon external agents, or their connexion with

each other. We have always regarded etiology and symptomatology essential parts of pathology; and as Dr. Symonds has referred (page 9) to physiology as an analogous instance, we are rather surprised that he should have overlooked this consideration. However, these are matters of comparatively trivial importance in comparison with the high practical value of the portion of the essay in which these terms occur; to these we have only thus referred, on account of the desire we feel that a settled and unambiguous meaning should be attached to all such forms of speech; and it is of little consequence in what sense an author uses them, provided he makes himself clearly understood.

The elementary forms of disease are arranged by Dr. Symonds according to their seats, or the parts in which they occur, into the following divisions: 1. Those of the *capillary vessels*. 2. Those of the *blood*. 3. Those of the extremities of the *nerves*. 4. Those of the *contractile fibres*. The diseases belonging to the first of these divisions are: *a*, alterations in the quality and the motion of the blood; *b*, diseased secretion; *c*, diseased nutrition. The second division includes excess or deficiency of blood throughout the system; and likewise abnormal states of that fluid. The last two divisions include "a host of morbid affections, which are often confounded with disorders of the circulation and other capillary actions, because they are often associated with them; but they may exist separately and imitate the others." They are disorders of feeling and of motion, and are often dependent upon diseases of the central organs of innervation; "but as they may exist separately, and be traced to a purely local origin, we have considered them deserving of a place among our pathological elements."

Now such a classification is doubtless useful, as all classifications except *very* artificial ones are capable of being made; but we must take leave to question its philosophical correctness. For example, we doubt if there is ever any purely local disorder of the nervous or muscular apparatus, which does not involve disordered nutrition. If we once admit the principle that all normal or physiological action is dependent upon two sets of conditions—an organized structure, possessed of certain properties which depend upon its peculiar form and character—and certain agents or stimuli external to it, by which these properties are called into operation, we do not see how the conclusion can be resisted, that the irregularity or morbid character of the action results from something out of order in the conditions. And, in the case of the muscular and nervous systems, if the disorder be not in the central organs, we do not see where else it can be than in the nutritive processes by which their properties are maintained. Again, changes in the nutritive and secreting processes are intimately connected (as we have formerly shown, Vol. VIII. p. 175, &c.) generally, indeed, in the relation of cause and effect, with changes in the quantity and motion of the blood through that individual part. Further, it is rather difficult to separate the processes of nutrition and secretion from each other, by any other line of demarcation than that the products of the former process immediately enter into organized structures, whilst those of the latter do not; yet in this classification, carcinoma is placed along with lymph, serum, and pus, as resulting from disorder of secretion. As all vital operations depend upon the continual reaction of the nutritive fluid and the solid parts which it permeates, so

do all disorders originate (it appears to us) in a disturbance of the natural relation between these; and were we disposed to classify the primary forms of disease, we should distribute them under these two heads only. In seeking for the causes of this disturbance, we should not leave innervation out of view; but should regard it in the same light with other influences external to the part itself.

In offering these criticisms, we would again desire to express our high appreciation of the manner in which the several subjects are handled by Dr. Symonds. The outline he has given of the principal morbid conditions, arranged under the heads he has proposed, is executed with the hand of a master, who makes his sketches convey ideas as distinct and intelligible as can be acquired from the finished delineations of an inferior artist; and we venture to say that there are few of our readers who will not be benefited by the perusal of it.

On Dr. Alison's contribution we shall be very brief; since it appears to us so perfect and well-proportioned, that we find nothing in it to criticize. The speculative and the practical are blended together in that happy method which characterizes the best productions of this distinguished pathologist. In regard to the essential nature of inflammation, his views coincide very closely with those which we formerly expressed, and which were formed upon the principles laid down in his *Outlines of Physiology and Pathology*. He very properly devotes a little space at the outset to the proof that there is such a pathological condition, involving an alteration in the *vital* properties of the parts concerned, as that denominated inflammation; and to the refutation of the shallow dogmatisms of Magendie, and the more respectable but scarcely less erroneous views of Andral. We are sorry to perceive, however, that he makes no allusion to Dr. Macartney's opinions, which seem to us more worthy of consideration than these.

ART. XVI.

On the Nature and Structural Characteristics of Cancer, and of those Morbid Growths which may be confounded with it. By J. MÜLLER, M.D. Translated from the German, with Notes, by CHARLES WEST, M.D. Graduate in Medicine of the University of Berlin. Part I.—London, 1840. 8vo, pp. 182.

THE design which the well-known author of this work had in view was to discover, by microscopic and chemical examination some more certain characters than are at present known for the diagnosis of those morbid growths which are often nearly similar in their evident structure though widely different in their pathological relations. In this design, however, his success appears to us to be very limited. In this first part of the work we cannot find that any sign is yet discovered in the microscopic or chemical characters of tumours which will suffice for a strict decision in the only cases in which, to a practised eye, any difficulty has hitherto existed. The subjects here considered are the various forms of cancer (including all malignant growths); and the distinctions between them and cartilaginous, fatty, and cysto-sarcomatous tumours. But we believe that few persons, in the habit of examining tumours by the means

commonly employed, would have much difficulty in forming as correct a diagnosis between cancer and any of these growths as the author by his more minute investigations pretends to establish. And in regard to some of the tumours which are to be considered in a future part of the work, the author, in speaking of the osteo-sarcomatous growths which occur especially about the bones of the face, confesses, as less accurate observers do, that "it is far from an easy matter to distinguish between these growths and those tumours of the bones which are really of a cancerous nature," (p. 137;) and in other parts speaks not unfrequently of similar difficulties. Between many tumours, therefore, the differences, important as they must be, seem to lie still deeper than microscopic sight or proximate analysis have yet reached.

But if this be the case with growths removed from the body, still less does the present work add to the means of determining the nature of tumours before extirpation, when, more than at any other time, an exact diagnosis is desirable. The author justly says that "microscopical and chemical analysis can never become a means of surgical diagnosis; it were ridiculous to desire it or to suppose it practicable." (p. 5.) At the same time it is to be remembered that in nearly all objects of natural history differences of minute structure are accompanied by almost as constant diversities of general external appearance. To take an example, to which he himself, for a different illustration, alludes,—the botanist, to determine the species of a minute moss or conferva, does not need to subject every specimen that he meets with to a microscopic examination, but he knows that each species has, with a certain minute structure, a peculiar general aspect, by which he can at once and at first sight determine its name; and he reserves the microscope only for a last resource in case of unusual doubt. And so should it be in the diagnosis of tumours; but in the determination of these general characters the present work rarely goes a step beyond those that are already well known.

However, in pointing out these deficiencies of the work, which will scarcely detract from its value in the opinion of the pure pathologist, we are far from wishing it to be thought that Professor Müller has not made another important contribution to science. Independently of the accurate description of the structure and mode of growth of many varieties of tumours, and of the more solid foundation which he has laid for a good classification of them all, some of the generalizations at which he has arrived are novel and of considerable value. The chief of them relates to the elementary constitution and laws of development of all the tumours he has yet examined, and which are proved to be in every apparent circumstance similar to those which prevail in the normal tissues. He has determined, with evident truth, "that no division of pathological structures into homologous and heterologous can be established. The most innocent growths do not differ in their minute elements, nor in their origin, from carcinoma." (p. 24.) Indeed the elementary structures of all the morbid growths hitherto examined resemble in every respect the structures presented in the several stages of development of the elements of the healthy tissues of the body. "Nuclei, cells, caudate bodies, fibres, and crystals are the only bodies which have hitherto been discovered in morbid growths, (p. 9); and many of them present some of the most remarkable illustrations of the universal law of development from cells,

of which we gave in our last number a full account from the works of Schwann and Schleiden, and of which, we may observe, some knowledge is essential to a just appreciation of the greater part of Prof. Müller's investigations.

All tumours then are developed from the same element (nucleated cells), and according to the same laws as the healthy tissues. Cells growing upon nuclei, and developing new cells within themselves, or elongated into caudate or spindle-shaped bodies, or in a still higher stage of development forming fibres, constitute the main structure of all morbid growths. Blood-vessels, which have been by many regarded as having the initiative in these diseases, are late formations, being produced in the masses of elementary structures, just as they are in those of the embryo, subsequently to many and important changes which are effected without their aid.

In general, however, the development of the elementary structure of morbid growths is checked at an early stage. The cell is by far the most frequent element of morbid growths, and sometimes cells alone compose their tissue, as in the laminated fatty tumour (cholesteatoma), the cellular sarcoma, the variety of cancer which the author terms carcinoma alveolare, and some others. In these instances cells cohering by their walls form the important parts of the structure, while fibres of cellular tissue serve only to form membranes uniting together its several lobules. In other cases cells elongated into caudate bodies are the chief element, as in fungus medullaris and sometimes in melanosis, and in many non-carcinomatous growths. In other examples again the cells are fully developed into fibres, as in the fibrous or desmoid tumour, the carcinoma fasciculatum, &c.

Nor is the fundamental similarity between morbid growths and the normal tissues confined to the structure of their elements; there is no essential difference in their chemical composition. All tumours, whether innocent or malignant, may be divided according to their main composition, as healthy tissues may, into fatty, gelatinous, and albuminous; and in none is there any peculiar proximate principle discoverable forming a considerable portion of its composition.

But, however these facts may appear to simplify the history of morbid growths, it must be confessed that they effectually destroy for the present all hope of being able by minute observations to distinguish the broad differences of *innocent* and *malignant*, which constitute their most important character, not only as subjects of surgical practice but also as objects of pathological science. And hence it is that Müller's definitions of cancer are based on no other characters than those which have been long known and appreciated; viz. its tendency to the destruction of all the tissues around it, and its liability to return after extirpation. Neither in the general observations, by which the description of the six varieties which he makes is prefaced (p. 28), nor in the summary which at its conclusion he gives on the nature of carcinoma (p. 78), is any attempt made to found a distinction between cancer and other morbid growths upon any of the minute observations to which the author has devoted himself.

The part of the work in which fewer deficiencies are evident is that which relates to innocent growths, including enchondroma, or cartilagi-

nous tumours, lipoma or fatty tumours, and cysto-sarcoma. Of all these, and especially of the first, the description is considerably more minute and clear than any that we have yet met with, and is sufficient to establish satisfactorily their essential nature, and the history of their development.

With reference to the translation we are bound to say that Dr. West has acquitted himself very creditably. He has rendered some of the harshest and most crabbed German we ever read into smooth and pure English; and the few notes that he has added are all judicious and useful. Dr. West was equally successful in his translation of Naegele's excellent work on Obstetric Auscultation.

ART. XVII.

Delle Dottrine sulla Struttura e sulle Funzioni del Cuore e delle Arterie, che imparò per la prima volta in Padova Guglielmo Harvey da Eustachio Rudio, e come esse lo guidarono direttamente a studiare, conoscere, e dimostrare la Circolazione del Sangue. Disquisizione di GIOVANNI MARIA ZECCHINELLI.—Padova, 1838. 8vo, pp. 100.

On the Doctrines respecting the Structure and Functions of the Heart and Arteries, first learned from Eustachio Rudio by William Harvey, and which were his direct guide to the study, recognition, and demonstration of the Circulation of the Blood. A Dissertation by GIOVANNI MARIA ZECCHINELLI.—Padua, 1838.

THIS is an elaborate and formal dissertation, in which an attempt is made to deprive Harvey of the greater part of his glory as the discoverer of the circulation, and to confer it on one of the author's countrymen, Rudio or Rudius. Our limits would not permit us to enter, at present, into the full merits of this discussion if so inclined; but in truth, amid all his special pleadings, the author himself affords sufficient authority for denying the conclusions which he pretends to arrive at. Rudius (Eustachio Rudio), it appears, succeeded Massaria in the chair of medicine in Padua in the year 1599, the year after Harvey's arrival, and continued teaching there during the whole period of his stay. (Harvey graduated in April, 1602.) Before his residence in Padua, and so far back as 1587, Rudius published his work, "De Virtutibus et Vitiis Cordis," and in 1600, during Harvey's stay at Padua, he printed, at Venice, that entitled "De Naturali atque Morbosa Cordis Constitutione." In this last he informs the reader that he had taught in his lectures the doctrines exposed in it, two months before its publication. Doctor Zecchinelli maintains that Harvey *must* have been acquainted with all the doctrines contained in these works of Rudius, both as auditor of his lectures and reader of the works themselves, which, from particular circumstances mentioned by him, excited much notice in the university at the time.

It is true that Harvey does not mention Rudius in his writings; but is not the very statement of our author, that it was Rudius who directed Harvey to the writings of Servetus, Columbus, and Cesalpinus, "*wherein he found much of what he had learned of Rudius more clearly stated*

than by him," a sufficient reason for this silence? It may indeed be true that Harvey was led by Rudius to consult these authors; but by Dr. Zecchinelli's own showing this is nearly all for which he could have been indebted to him; since he himself (Dr. Z.) admits that nearly all the truths that Harvey might have learned from Rudius, Rudius had himself learned from other authors; while these other authors contained many other truths of which his hero Rudius was ignorant. In fact this *Disquisizione* is a much greater exposure of the poverty of the Paduan professor than of our great countryman, as the subjoined abstract of his summary will show. Of this summary we will only further remark, that while it repeats all the charges previously made against Harvey, of borrowing or stealing from others, without adding a single new one, it displays such a self-evident and resolute determination to strip him of his honours, at all hazards, as to do away with the necessity of all defence. This, therefore, we shall not attempt; nor shall we stop to put the author right even where he is palpably wrong; but we confess we should not be sorry if this attack should stir up some of our young and zealous brethren to vindicate, in detail, the reputation of our greatest physiologist from every aspersion cast on it by this medical Zoilus.

"I. *Things false taught by Rudius to Harvey.* 1. Formation of blood in the liver: maintained by Harvey. 2. Passage of the blood through the ventricular septum: corrected by Harvey, but previously known to Berengarius, Vesalius, Servetus, and Columbus. 3. That the pulmonary artery conveys air to the left ventricle: corrected by Harvey, but previously known to Columbus. 4. That the spirits and carbon (fuligo) are generated in the left ventricle—the former escaping by the aorta, the latter returning through the pulmonary artery: derided by Harvey, but previously by Cæsalpinus. 5. That the spirits generated in the left ventricle flow over the whole body: refuted by Harvey, who, however, does not notice that Rudius himself had said that "spirituous blood" also flows.

"II. *Things true taught by Rudius.* 1. That the *vena arteriosa* (pulm. art.) has the office of an artery, and the *arteria venosa* (pulm. vein) that of a vein: claimed by Harvey, but previously noticed by Cæsalpinus. 2. The use of the valve of the heart in opening and closing to admit the passage and prevent the return of the blood and spirits or *spirituous blood*: Harvey first learned this from Rudius, and at the same time obtaining a knowledge of the existence of similar valves in the veins generally, inferred the functions of the latter. 3. The passage of the blood from the right ventricle to the lungs, not merely to nourish them, but for an *ulterior purpose*: this statement of *ulterior purpose* was concealed (dissimulato) by Harvey. 4. The transit of the *spirituous blood* through the arteries and whole body, to convey heat, life, nutrition: a statement passed over by Harvey, while he enlarged on the ancient error of the arteries containing *only spirit*. 5. Pulsation communicated by the coats of the arteries, not by their contents: reversed by Harvey.* 6. The having referred, though only slightly (*ma leggermente*), to vivisections, the ligature and section of vessels: followed out by Harvey, who was however incited thereto and supported by the previous statements of Columbus and Cæsalpinus, and by the *opportunities of his position*! 7. The having made a reference, however slight (*un lievissimo cenno*), of the communication between the arteries and veins in the liver: Harvey concealed that any other had spoken of this communication.

"III. *The Defects of Rudius were:* 1. He omitted to notice that the *vena arteriosa* (pulm. art.) is larger than is required for the mere nutrition of the

* This should have come into the former category of *Things false*.—Rzv.

lungs: Harvey speaks of this, but had learned it of Columbus if not of Servetus. 2. He did not state that the blood in the lungs passes from the arteries into the veins by direct communication: Harvey takes credit for this discovery, which, however, belongs to Servetus, and was still better exposed by Cæsalpinus. 3. He never spoke clearly of the blood in the arteries, confounding this with the spirits, heat, &c.: Harvey did, but the fact was known before him from the dissection of living animals.

"IV. *The essential things taught by Rudius and neglected by Harvey were: 1, The influence of the heart on the affections of the mind; 2, the action of the nerves; 3, the peculiar nature of the fibres of the heart, &c.*"

Such is the case made out for Rudius,—a case which, as we have said, tells little in his favour, however it may tell against Harvey.

We subjoin, by way of curiosity, our author's enumeration of what he terms "*The real Merits of Harvey*," which if they are generally and severally poisons to the vanity of his countrymen, he has assuredly done his best to provide antidotes against their evil working. The *catalogue raisonnée* is really amusing.

"1. Harvey recognized the use of the veins, but he did so by inference, after having been taught by Rudius the use of those of the heart:—a merit of *induction*, not of *Discovery*! 2. He practised vivisection, thereby ascertaining what he terms *new and unheard-of things*, but both the vivisections and these new and unheard-of things had been indicated (additate) by others:—a merit of *imitation*, *confirmation*, at most *extension*,—not of *Discovery*! 3. He proved that the whole mass of the blood passes through the heart, and in so short a space as could not be furnished by nutrition; and throughout the body continually by the arteries in greater quantity than is required for nutrition:—a merit of *observation*, *comparison*, *ratiocination*—not of *Discovery*! 4. He proved by the ligature and division of vessels that the blood passes from the heart by the arteries, and returns by the veins, but these experiments were suggested and had been partially executed by others:—a merit of *execution*, *confirmation*—not of *Discovery*! 5. *His unquestioned merits* were, however, great, viz. the exactness and soundness in his inductions; skill and diligence in his experiments; attention and delicacy in his observations; sagacity and accuracy in his reasonings; clearness and truth in his conclusions; numerous new and important reflections; steadfastness (*costanza*) in all his proceedings:—great merits, certainly—but not *Discovery*!"

And did Harvey really discover nothing? Dr. Zecchinelli says yes; but we appeal to his own words whether his characteristic generosity, in allowing thus much, has not got the better of his sense of justice.

"One sole *Discovery* remained for Harvey—viz. the determining the mode of communication between the ultimate arteries and nascent veins; and even to this he himself seems not to have aspired, as he contents himself with speaking of this communication as *mediate*, *immediate*, or in *both ways*. The supposed *mediate* communication being through 'carnis porositates.' Even the term '*circulation*' is not of Harvey's *invention*, since it was used by Cæsalpinus in reference to the lesser circulation; nor is the *application* of this term to the general course of the blood *invented* by him, since it had been already made by Thomas Aquinas, when amplifying the doctrines of Aristotle."

Alas, poor Harvey!

PART SECOND.

Bibliographical Notices.

ART. I.—*A Treatise on the Physiological and Moral Management of Infancy.* By ANDREW COMBE, M.D., Physician Extraordinary to the Queen, &c.—Edinburgh, 1840. 12mo, pp. 375.

AFTER a careful perusal of this little volume from beginning to end, we do not hesitate to pronounce it to be one of the most valuable and most important works that has issued from the medical press for years. We make this statement in reference as well to the matter of the book as to the manner in which it is written, and also the probable extent to which it will be read. There may be much information in a work which is nevertheless of little value from the unattractive way in which it is conveyed; and it does not always happen that books which are both instructive and well written become favorites with the public, and are in consequence perused by a vast number of persons. The works on popular medicine, however, hitherto written by Dr. Combe, have possessed all the qualities calculated to ensure that highest and best popularity which consists in the perusal and study of them by a large proportion of the well-instructed and well-disposed in every rank of society; and when we see that the present volume possesses all the excellences of its precursors, and the advantage of their reputation also, we have no doubt of the extensive popularity that awaits it. We learn by an advertisement of Dr. Combe's publisher, inserted at the end of this treatise, that no less than 13,000 copies of his "Principles of Physiology applied to Health" have been sold in Great Britain alone (and double that number in America) since its publication in 1834; and that upwards of 5000 copies of the "Physiology of Digestion," published two years subsequently, have been similarly disposed of. A popularity like this, which we believe to be unequalled among medical works, while it is the highest reward of an author's labours, imposes upon him a proportional amount of responsibility as to the character of the future works he may lay before the public, since his opinions, right or wrong, are certain of influencing, for good or for evil, a large portion of the community. And the responsibility is still further enhanced when the subject discussed is, as in the treatise before us, one of the very first importance to the physical and moral condition,—to the life, health, and happiness of mankind. The terms in which we have, in our opening sentence, briefly characterized this new production of Dr. Combe sufficiently evince our opinion as to the manner in which the author has, in its pages, acquitted himself of his high obligations, and preferred fresh claims to the consideration and gratitude of his contemporaries.

And yet it is not so much from the originality of the facts and doctrines communicated as from their completeness and the peculiar manner in which they are communicated, that this small treatise so greatly excels all that have preceded it in the same line. This is admitted by the author himself, who tells us, in his preface, that "it is in the habitual application of *principle* to the inculcation and advancement of knowledge, more than in any absolute novelty of detail," that he expects it to be found deserving of notice. It is certainly most true, as is also stated by Dr. Combe, that most of the works of the kind hitherto published, however excellent in other respects, "lose much of their value and usefulness from presenting their rules and admonitions as so many abstract individual opinions, and omitting to connect them with the physiological laws or principles on which they are based, and according to which their effects are produced." Accordingly it has been, he says, his constant endeavour, in the present as in his former works, "to allow as little as possible to rest on mere human opinion, but to show a foundation for every rule, precept, and injunction, in the laws of the human constitution, and consequently in the will of the Creator." How completely he has accomplished his intentions, with what a rigid adherence to his principle, with what sustained interest of exposition, and with what fertility of results, will be admitted by every reader. We regret extremely that the late period of the quarter at which this volume reached us puts it out of our power to do more than to pass this general judgment on its merits, and to give a mere catalogue of its contents. We hope, however, to be able to return to it on some future occasion, and to enrich our pages with some of its more important details, which, although expressly calculated for the general reader, will be found no less interesting and valuable to the profession. Indeed we are persuaded, from long experience and observation, that there are few members of the profession who will not derive some benefit from this little work; while to young practitioners, and to all enlightened parents, it cannot fail to prove of inestimable value. The last chapter, "On the Moral Management of Infancy," humble as are its pretensions, we venture to recommend to the notice of the instructors of youth of every degree, to our moral teachers however elevated, and even to our metaphysicians however learned, as fraught with truths of the most momentous kind, which will probably be new to many of them, and which cannot fail, if candidly considered and honestly acted on, to lead to practical results of the highest import to human happiness. In it the author touches lightly, but with a masterly hand, on that chord, mostly overlooked by our philosophers, which unites so harmoniously the intellectual and moral with the physical nature of man, and the due recognition and just appreciation of which are indispensable to our progress in real metaphysics, and to the establishment of all rational instruction.

The work is divided into fifteen chapters, with the following summary headings, which however but imperfectly convey the extent and variety of the matter contained in them respectively:—1. Introductory Explanation. 2. Extent of Mortality in Infancy. 3. Sources of Disease in Infancy. 4. Delicacy of Constitution in Infancy. 5. Conditions in the Mother affecting the health of the Child. 6. Constitution of the Infant at birth. 7. The Nursery and conditions required in it. 8. Manage-

ment of the Infant immediately after birth. 9. Food for the Infant at birth. 10. The choice, properties, and regimen of a Nurse. 11. Artificial Nursing and Weaning. 12. Cleanliness, Exercise, and Sleep in early Infancy. 13. Management during Teething. 14. Management from the time of Weaning to the end of the second year. 15. The Moral Management of Infancy.

The work is printed in a neat but unexpensive style. It is dedicated by the author to his friend Sir James Clark, in terms of warm affection and not unbecoming praise. All who have had opportunities of judging of Sir James as a professional brother and practitioner, and every reader of his classical works on Climate and Consumption, will readily assent to the justness of Dr. Combe's estimate of his merits, and of his especial claims to consideration as a successful labourer in the highest and most philosophical department of medicine—the hygiènic treatment of man.

"For many years (says Dr. Combe) not only have you taken a deep and active interest in the improvement of medical education, and in elevating the character, extending the scope, and increasing the usefulness of the profession; but acting on the same principles which I have endeavoured to enforce, you have rendered no small service to science by your instructive exposition of the manner in which fatal disease of the lungs so often and so insidiously originates in apparently trifling causes connected with disregard of the ordinary laws of health. You have further shown that when medicine shall be cultivated in a more liberal and comprehensive spirit, and its principles be recognized as furnishing the only solid foundation for a proper system of physical, moral, and intellectual education, it will become one of its noblest uses, and, I may add, one of its greatest privileges to be instrumental not more in the prevention of disease and suffering than in largely contributing to the general happiness and permanent advancement of the human race."

ART. II.—*First Lines of Education: a Course of Four Lectures delivered to the Members of the Literary and Scientific Institution, Worcester.* By EDWARD ASTBURY TURLEY, Surgeon.—*Worcester*, 1839. 8vo, pp. 81.

THE great increase of popular works, and the frequent delivery of lectures in every large town, aiming at the inculcation of sound principles of education, prove most satisfactorily that the period is not far distant when the empirical and fanciful pedagogue will be displaced by the rational and scientific instructor.

For some years enlightened teachers have considered it necessary to give their pupils due insight into the general laws governing their own organic structure, and the period is not far distant when another advance will be made, and the grand doctrine will be universally taught, that man's moral, intellectual, and animal faculties are solely dependent upon a portion of his organic structure. When the plain and simple truths of physiology are made to sweep away the present system, the result of metaphysical speculation; when the teacher is enabled to apply certain general and immutable laws in his course of education, instead of depending upon opinions and dogmas resulting from imperfect views of human

nature; when, in fact, philosophy is advanced to the post hitherto occupied by empiricism—then, and not till then, will our youth be educated in accordance with and not in opposition to nature's commands.

Mr. Turley is a phrenologist, and his lectures were delivered for the purpose of "demonstrating how the physiology of the brain, or *phrenology* as it has been called, is applicable to the successful training of body and mind, called education." The first three lectures contain considerable information in reference to physical education. The fourth is very unsatisfactory as regards the application of phrenology, and Mr. T. by no means treats the subject of mental education in the philosophical manner we were led to expect.

We extract the following table, giving the results of eleven measurements of the infant head, and think a continuation of the investigation will afford some curious and valuable facts. The measurements were taken weekly, commencing upon the day of birth.

	Nov.		December				January			Feb.	March
	23	30	7	14	21	28	4	11	18	25	4
The circumference of the head	In. 13	In. 14	In. 14	In. 14½	In. 14½	In. 14½	In. 14½	In. 14½	In. 15	In. 15	In. 15
Space between the orifices of the ears	7½	8	8½	8½	8½	9½	9½	9½	9½	9½	10

Speaking of this phrenologically Mr. T. says,—

"The increase in the respective regions, namely, the perceptive, reflective, moral, and animal were in this order: first the perceptive were seen to come forth, then the reflective, then the animal, then the moral. After this, and during the next six months, we noticed the onward movement to be in this order: the reflective, the animal, the moral, and then the perceptive; and with the jetting forth of the ears by destructiveness and combativeness, we had evidence enough of what we had never seen before, namely, passion or temper, as it is called, at opposition, even to striking of the offending object. (p. 48.)

Mr. T. believes the fact of the external division of the olfactory nerves terminating in the anterior extremity of the middle lobe of the cerebrum, to be a discovery of his own. This is not the case. Phrenologists have long noticed this distribution, and it has been described by anatomists for a very long period. We have no doubt these lectures, although not of a high order, were beneficial; and we are glad to see the members of our profession exerting themselves to remove the ignorance which surrounds the all-important subject of education.

ART. III.—*Treatise on the Ear; including its Anatomy, Physiology, and Pathology: for which the Author obtained a Gold Medal in the University of Edinburgh.* By JOSEPH WILLIAMS, M.D.—London, 1840. 8vo, pp. 255, and 6 Plates.

THE pathological is the only part of this treatise which merits any consideration. It is to be remarked that the acuter diseases of the ear, though the least frequent are not the least understood. The nature and treatment of habitual deafness are what we are most ignorant of; and

cases of this kind unfortunately make up the great bulk of those which come under the practitioner's notice. We are unwilling to despair of an extension of our knowledge on the subject, but we are satisfied that hope can be reasonably entertained only when the well or ill founded nature of any particular view is closely scrutinized, and proved by an appeal not to assertion but to well-observed facts.

If our author had approached his subject in some such spirit as this, the talent which he undoubtedly displays would have enabled him to produce a treatise more worthy of approbation. He has indeed judiciously enough discussed the subject of the acuter diseases of the ear, but in treating of its less generally understood affections he has too frequently mistaken assertion for argument, and has even been occasionally forgetful enough to think to strengthen his own by coupling with them the equally vague assertions of others, in order to refute conclusions founded on well-directed observation and close reasoning. This is particularly exemplified in several flings he essays against Dr. Kramer's work. There are weak points in that work, on several of which we have on former occasions animadverted; but we must tell Dr. Williams that he has failed to adduce observations to invalidate what in it he objects to; and in his attempts to prove inconclusiveness of induction on the part of the author, he betrays, to say the least of it, an over-hastiness to blame, and no great knowledge of what he is writing of.

ART. IV. *Mercury, Blue Pill, and Calomel, their use and abuse.* By GEORGE G. SIGMOND, M.D., F.S.A., F.L.S., &c.—London, 1840. 12mo, pp. 229.

THIS little work, we are told in the preface, is a reprint of some lectures that originally appeared in one of our medical Journals. We hardly think these need have been disturbed in their repose; yet they are not without some value. The first 26 pages of the volume are occupied with a general history of the metal and its applications, written in a very lively and amusing though not always correct style. The author then describes the various preparations of mercury in the pharmacopœia, and points out the diseases to which they are severally most applicable: he also comments on the use of other remedies that are usually combined with mercury in the treatment of the diseases noticed, or that have obtained celebrity in such cases upon their own merits. From among some good practical hints scattered up and down this part of the work, we shall select a few observations upon the abuse of purgatives, by way of an appendix to our article on Dr. Burne's book in another part of the present Number: they unfold "an ower true tale," not a little discreditable to British therapeutics.

"When a medical man is called in, who is an advocate for the purging system, patients generally soon fall into his way of thinking; they have a sort of gratification in discharging a large quantity of nasty-looking greenish or black stuff. They fancy they have discharged a mass of corruption; and they are quite ready for another dose of blue pill and a draught. . . . They are very much pleased with what has been done for them; and, indeed, were they to rest contented all would be well; but they fancy they have discovered the means of attaining lasting health, they therefore give way to the pleasures of the table, quite satisfied that

they know how to get rid of any accumulation that may occur. . . . Sometimes, after dinner, a kind friend recommends his own pill from a prescription he had from Abernethy or Baillie, or the fashionable dyspeptic doctor of the day, which he declares he has used twice a week for the last five years, and never known an ache or pain since; the greedy auditor swallows the tale, and afterwards the physis, whose composition may be completely opposed to his state: he goes on with it, week after week, disordering his bowels, expelling the natural mucus, urging on the canal to increased action, till at last his stomach and the whole digestive apparatus become really impaired. He then goes from physician to physician all over London: each gives him a prescription for a tonic, a stimulant, or a bitter; at length a permanent irritation is kept up, the whole system sympathises with the alimentary canal, the mind is feverish and irritable, the viscera become deranged, and at last the poor sufferer falls a victim to the early benefit which he had received from the proper administration of medicine, and then from its abuse." (p. 67.)

"The unnatural colour and the fœtid odour of the stools are quite as often produced by the medicine that has been exhibited as by any other cause, for often does calomel give rise to the very odour which some persons think is a proof that medicine is to be continued; the slimy stools of children, which are often the cause of purging being carried on to a very great extent are, in many instances, the consequence of what has been given. As long as the remedial agent is taken the fœcal residue does not acquire its wonted solid consistence, nor give forth the usual smell, which is acquired from its remaining in a certain portion of the large intestines. . . . The offensiveness of the fœcal evacuation, though it may guide the practitioner as to the particular viscus that is disordered, cannot serve as any assistant by which he may ascertain whether more action is required. . . . Although in many diseases of infancy and of childhood aperient medicine is certainly useful, yet it should ever be borne in mind, that with excrementitious matter, there may be very often carried away that which nature has with some difficulty elaborated for nutrition; and in weak sickly children who have a tendency to scrofula, it not unfrequently happens that the food which was intended to be imbibed is just carried away at the moment when the glands most require something to store up for future nourishment." (p. 69.)

Dr. S. is opposed to minute doses of mercury, because they produce the same irritation as large ones, and are not carried off by the bowels. But he is loud in his praises of sarsaparilla. He gives a theory of the mode of action of this remedy which may be true, though we think not, and which we shall not therefore transcribe. We however concur with him in his high estimation of sarsaparilla after a mercurial course and indeed in conjunction with it.

ART. V.—*A Treatise on Amaurosis and Amaurotic Affections.* By EDWARD OCTAVIUS HOCKEN.—London, 1840. 8vo, pp. 359.

This is a beautiful and elegantly printed volume, almost in itself sufficient to cure the Tweediean amaurosis, noticed in another article of this Number. We have had recourse to it for this very purpose, and with a very satisfactory result. But, great as they are, the external merits are not the only merits of Mr. Hocken's book. To be sure it contains nothing original, but it contains almost all that has been said on the subject by others. In this compilation the industry of the author is conspicuous, and, we are bound to add, his candour also, as he always takes care to own his obligations to the authors from whom he borrows.

ART VI.—*On Diseases of the Bladder and Prostate Gland. With Plates.* By WILLIAM COULSON. *Second Edition, greatly enlarged.*—London, 1840. 8vo, pp. 258.

WE gave a brief notice of the first edition of this work in our Sixth Volume (p. 509), to which we beg to refer the reader. It is, however, but justice to the author to state that the present edition is not only “greatly enlarged,” as stated in the title-page, but greatly improved also. It is now, indeed, a pretty complete manual of the important class of diseases of which it treats, and cannot fail to be highly useful to all junior practitioners, and even to those of older date who have not access to large libraries or have not kept their knowledge quite on a level with the progress of surgical science. Besides improving every subject, and illustrating the whole with plates and woodcuts, the author has added five new chapters; viz. one on the urine, one on spasm of the bladder, and three on the diseases of the prostate. Among other alterations we observe that Mr. Coulson has changed the title of the fourth chapter from “sub-acute” to “chronic” inflammation of the mucous membrane of the bladder, and we think judiciously,—*chronic*, although necessarily still indefinite, being certainly a better understood term than the other, while it is free from the fault of seeming to convey more information than it really does. In reading this chapter again we see that in our former article we were led into a mistake by this indefiniteness of the term sub-acute, so as to question whether the author had noticed the chronic form of inflammation at all in his former edition. This chapter, as enlarged in the present edition, gives a very excellent account of this very troublesome affection.

We once complained of Mr. Coulson for bringing his books out too fast: we shall not do so any more if he proves to us, as he has done in the present, that he industriously devotes his time to his own improvement and the promotion of sound surgical knowledge.

ART. VII.—*A Memoir on Extra-Uterine Gestation.* By Dr. W. CAMPBELL, of Queen’s College, Edinburgh, &c. &c.—London, 1840. 8vo, pp. 154.

THIS is a most elaborate memoir, and very creditable to the industry of the author; sometimes, indeed, the feeling crossed our minds during the perusal of it that he had been a little too painstaking; for doctrines, of which he believes little or nothing, and cases to which he attaches an equal degree of credit, are detailed and commented on with as much care as if they were valuable additions to our stock of medical learning. We do not perceive that Dr. Campbell has succeeded in throwing any new light upon the subject of extra-uterine gestation, and, to deal justly with him, we scarcely expected it. They, however, who are anxious upon this subject, and desire to peruse an accumulation of cases from the earliest periods to the present moment, may consult this little volume with more advantage than any of the essays upon it which are contained in various other works.

ART. VIII.—*The Principles of Botany; Structural, Functional, and Systematic. Condensed and immediately adapted to the Use of Students in Medicine.* By W. HUGHES WILLSHIRE, M.D., Lecturer on Botany at Charing Cross Hospital.—London, 1840. 12mo, pp. 332.

"It was not," says the preface, "on account of any deficiency of works introductory to the study of botany that the author was induced to make public this little book, but because he thought he could present to the student of medicine a *more condensed view of the first principles of the science, combined with circumstances, and illustrated in a manner which would more immediately interest him*, than was done by any mere single text-book with which the author was acquainted." In this opinion we are, on the whole, inclined to agree. Without anything very original, either in facts or in the interpretation of them, and in some instances with what appears to us rather too free a use of works which have a similar object with his own, Dr. Willshire has produced a little treatise which will, we doubt not, from its clearness and simplicity, be acceptable as well as useful to those for whom it is designed. In the anatomical and physiological portion he has availed himself of the most recent information at his command, and interwoven it well with that of older date. We regret, however, that he should have so completely neglected the cryptogamia in this portion of the work; and that he should have adopted in his systematology the primary divisions of Decandolle, since these have been proved to be founded on erroneous principles.

ART. IX.—*A Report on the Progress of Vegetable Physiology during the year 1837.* By F. J. F. MEYEN, M.D., Professor of Botany in the University of Berlin. Translated from the German by WILLIAM FRANCIS, A.L.S.—London, 1839. 8vo, pp. 160.

THE appearance of this translation has been delayed by a cause which we are sorry to learn—the want of a sufficient number of subscribers to cover the expense of printing it; and the same cause, if it continue to operate, will prevent the translator from pursuing his useful labours by giving the subsequent Reports of the same learned botanist to the English public. We have on so many occasions directed the attention of our readers to the importance of this department of science that we need not now enlarge upon it; and we shall only state that we know of no means of keeping pace with the rapid progress of vegetable physiology, and especially with those continental researches of which but a small part would otherwise find their way to this country, at all to be compared in facility with the study of the admirable Annual Reports of Professor Meyen. And to those who are not extremely conversant with the German language, we strongly recommend the employment of such a faithful and skilfully-executed translation as that of Mr. Francis, as more likely to give them correct and definite notions of the author's meaning than the perusal of the original.

ART. X.—*Pathological Observations on the Diseases of the Uterus.* By ROBERT LEE, M.D., F.R.S., Physician to the British Lying-in Hospital. With coloured illustrations from original drawings by Mr. PERRY. Part I.—London, 1840. Fol. pp. 12. Four Plates.

THIS is the first fasciculus of a work in which Dr. Lee proposes "to illustrate, by cases and coloured plates, the nature, symptoms, and treatment" of the diseases of the uterus and its appendages, arranged under the following heads:—1. Malignant diseases. 2. Fibrous, calcareous, and other tumours. 3. Inflammation and functional diseases. 4. Diseases of the ovaria, &c. 5. Diseases of the gravid uterus. The part before us consists of a series of forty-two cases of malignant disease, in different forms and stages, concisely yet carefully detailed, and four plates—three illustrative of the cases, and one, which seems much out of place here although in itself curious, a drawing of a malformed foetus described by the author in vol. xxii. of the *Med. Chir. Trans.* When completed this work will be very valuable, as we presume the author, ere he closes it, will place the results of his anatomical researches and practical experience in the form of general summaries of some length before his readers. At present it can hardly be looked upon as much more than as a treasury of valuable facts in morbid anatomy, rendered indeed mutually illustrative by classification, yet still awaiting the generalizing touch of the author to have their full value eduved for the benefit of pathology and practical medicine. We know few more capable of doing this than Dr. Lee; and we trust that it is his purpose to do so. In the meantime we must content ourselves with the following summary appended to the present series of cases, the excellence of which makes us regret its extreme brevity:

"From these cases it will be seen that the fungoid tumour of the uterus, or cauliflower excrescence, scirrhous, carcinoma, and corroding ulcer, are merely different forms of the same malignant disease; that the morbid changes may commence in the mucous and muscular coats of the fundus and body of the uterus, though they are observed most frequently to begin in the orifice and cervix. It may be inferred, also, from these histories that inflammation of the uterus does not give rise to cancer in any form; and that the progress of the disease to a fatal termination is never arrested by those remedies which subdue inflammation. Three of the individuals whose cases have been related were under thirty years of age, three between thirty and forty, sixteen from forty to fifty, and fourteen from fifty to sixty. In ten cases there was either no pain whatever experienced in the uterus, or it was only a slight dull pain or sense of uneasiness within the pelvis. Hemorrhage from the uterus, foetid discharge of serum, mucus, and pus mixed with blood from the vagina, and sickness at stomach, were the symptoms almost invariably present after ulceration had taken place. The hemorrhage from the uterus was most profuse and the pain slightest in the fungoid form of the disease.

"In the treatment of these cases when the pain was severe, relief was occasionally obtained by leeches applied to the anus, hypogastrium, and groins, and cupping-glasses to the sacrum. In no case was great benefit derived from the application of leeches to the os uteri. The frequent injection of tepid water into the vagina, decoction of poppies, solutions of opium, conium, lead, zinc, nitrate of silver, and chloride of soda, often diminished the fetor of the discharge

and soothed the sufferings of the patients. The tepid hip-bath often afforded great relief; and the pain was frequently mitigated by friction with camphorated liniment and laudanum over the loins, lower part of the spine and sacrum, and the whole region of the uterus. The belladonna plaster over the sacrum was only useful in a few cases and for a short period. Excruciating pain was often diminished by an enema of laudanum, and a little warm milk or solution of starch. Solid opium, the liquor opii sedativus, the preparations of morphia, and the extract of hyoscyamus, were the most useful internal remedies.

"Neither the removal of the whole uterus by a surgical operation nor the destruction of its orifice with caustic or other means was considered justifiable in any case." (p. 12.)

It would be injustice to the work and the artist, Mr. Perry, not to call attention to the great beauty of the plates.

ART. XI.—*Commentaries on Diseases of the Skin, illustrated by coloured Plates, representing the Commencement, Progress, and Termination of the Eruptions, drawn, lithographed, and coloured by JOSEPH PERRY. By A. T. THOMSON, M.D., F.L.S., Professor of Materia Medica in University College, London. Parts I-II-III.—London, 1839-40.*

THIS is a work of considerable pretension both on the score of its letter-press and its pictorial illustrations; and we are happy in being able to say, after a careful inspection of both, that the pretension is well justified by the performances both of the writer and the artist. The plates are, indeed, excellent, both as to design and colouring, and fulfil almost every requisite that illustrations are capable of supplying. We can therefore, strongly recommend the work to our readers, well assured that the closest study of it will justify our recommendation.

The only fault we have to find with the publication is its price; although we by no means think it dear, when we consider the quality of its contents; on the contrary, we think it very cheap; but we mean to express our fears that its price may prevent it from coming into the hands of practitioners generally, and the great body of the profession be thereby deprived of much valuable instruction. We trust, at any rate, that every medical society, library, and book-club, will take care that its members have this advantage.

The three fasciculi published contain eight folio plates and about 150 pages of octavo letter-press; the subjects treated of and represented being *Lepa vulgaris*, *L. syphilitica*; *Psoriasis diffusa*, *P. palmaria et lotorum*, *P. inveterata*; *Rupia vulgaris*; *Pityriasis rubra*; *Herpes zona*.

The author's account of the different diseases is very full yet practical; the treatment is given at considerable length; and numerous cases are introduced both from the private and hospital practice of Dr. Thomson. The style is rather careless; and the improper expression "the habit,"—meaning body, system, constitution, temperament, &c. &c.—provokes the reader in every page.

ART. XII.—*Vier Abbildungen des Schädels der Simia Satyrus, von verschiedenen Alter, zur Erklärung der Fabel vom Oran Utan.* Herausgegeben von Dr. C. F. HEUSINGER.—Marburg, 1838.

Four Representations of the Skull of the Simia Satyrus, at different Periods of Life, with the view of illustrating the Fable of the Orang Utang. By Dr. C. F. HEUSINGER.—Marburg, 1838. 4to, pp. 44.

THE author purchased, in 1828, from Dr. Besel, who brought them with him from Batavia, besides the skin and complete skeleton, the skulls of three young orang utangs, which he deposited in the museum of the Zoological Institute, founded by himself, of the university of Würzburg. In addition, he obtained from the same traveller a drawing of the cranium of an old orang, or pongo, which had been shot by the naturalist Diarel. Dr. Heusinger was assured, both by Dr. Besel and by Dr. Fritze, director of the great hospital at Batavia, that all the intermediate gradations between these two animals are well known in Java, and that nobody entertains there the slightest doubt as to the identity of the young red orang and the old black or dark-brown pongo. This, indeed, was the opinion, though only maintained conjecturally, of Tilesius, Cuvier, Lawrence, and Rudolphi. It was supported in the most convincing manner by Mr. Owen, in the first volume of the Transactions of the Zoological Society. Since the publication of that memoir, the identity of the pongo and orang has been called in question by M. Blainville, who has brought forward in opposition to it some observations on the skull of a full-grown orang utang from Sumatra; Borneo having been hitherto the only known habitation of the species. All objections against the identity of the pongo and orang of Borneo turn upon the question whether age is capable of giving rise to such surprising differences of formation as that which display themselves on a comparison of the skulls of the smaller and larger animal; and this is the anatomical, or rather physiological, question which Dr. Heusinger has discussed. He was induced to publish these observations by the expression of Blainville's doubts against an opinion which he had long held as certain. Unfortunately, Dr. Heusinger had never read the excellent memoir of Mr. Owen on the comparative anatomy of the chimpansi and orang utang, of which, as he says, he had only seen an abstract in Müller's Archiv, and a copy of the beautiful pongo skull in the new edition of Prichard's Researches. Had he made himself acquainted with that paper, he would have become more fully aware than he appears to be of the immense importance of attending to varieties in the basis of the skull, as indicative of its most essential characteristics. This remark, which is due entirely to Mr. Owen, is of infinitely greater value than the measurement of the facial angle proposed by Camper, or the comparison of the areas of the cranial span and facial circumference suggested by Cuvier. Heusinger, however, had not sufficient opportunity of instituting this comparison. Of the old pongo he has only a drawing in profile, which is very similar to that given by Owen; but he might have given views of the basis from the skulls in the Würzburg collection. He endeavours to obviate the objections which have been made against Mr. Owen's opinion and his own, by showing that the skull of the young and old animals display a proportionable difference in other species of

simiæ, particularly in the cay, the mandril, and the cynocephalus. With regard to the cay, the cebus of Azava, we possess the most accurate information from Reugger, who, in his "Naturgeschichte der Säugthiere von Paraguay," has shown that the young animals of that species undergo most extensive changes in the development of the bony fabric; the skull and the contour of the face being altered at the period when the second dentition takes place, in a manner similar to the changes pointed out by Mr. Owen in the chimpansi and orang. The young and the old mandril differ from each other more widely, both in form and colour, than the orang and the pongo: they were long taken for two distinct species. F. Cuvier and Geoffroy have often observed the transition from one to the other form. Similar variations, depending on age, have been noticed by Ehrenberg* in the cynocephalus hamadryas, who has observed that several species have been constituted by naturalists from the varieties, depending merely on age and sex, which this tribe presents. These remarks suffice to remove all improbability from the opinion maintained by Owen and Heusinger as to the identity of the orang and pongo; and the present work brings some additional evidence in its support, from the positive testimonies of competent observers in the native country of the tribe.

By far the greater part of Dr. Heusinger's memoir is devoted to a discussion of what he calls the fable of the orang utang; by which he means the superstitious veneration paid to apes in different countries. This introduces a learned disquisition on the worship of animals, as practised by the Egyptians, and which, as it is well known, constituted so remarkable a feature in the system of superstitious observances, for which that people are famous through the world. In reference to the worship of the ape in Ethiopia and Egypt, Dr. Heusinger adduces a whimsical conjecture of Ehrenberg's: he thinks that the ancients distinguished but obscurely from each other the lower tribes of mankind and the *simiæ*. Many races in Abyssinia now wear their hair frizzled out in such a manner as to present a striking resemblance to the cynocephalus hamadryas. It *might* be from a human being, with a similarly frizzled head and a cynocephalic muzzle, born in Ethiopia, perhaps at Merawe, (a place well known to the Egyptians,) that that celebrated people first received the art of writing; for which they gratefully deified the inventor! This may appear very probable to a learned German traveller, who has seen so many wonders in foreign lands; but he must tell us why the inventor of letters, Thoth, is always represented with the head of the ibis instead of that of a monkey.

A chapter in this learned work of Dr. Heusinger's is devoted to the names of the ape in different languages, and to the etymology and affinity of these names; another to the most ancient notices of *simiæ* in antiquity, which he finds to be in the symbols adopted in the cycle of twelve years, which was very early in use among the astronomers of middle Asia; for an account of which he refers to Abel, Remusat, and Julius Klaproth. Hanamar, the ape of Indian mythology, and the wars of Rana against the monkeys of Lanka-dwipa, are not neglected.

* Symbolæ Physicæ.

PART THIRD.

Selections from the British and Foreign Journals.

I. THE FOREIGN JOURNALS.

ANATOMY AND PHYSIOLOGY.

Researches on the Structure of the Cortical Layer of the Convolutions of the Brain.
By M. BAILLARGER. (*Abstract of the Report of MM. Ribes and Blandin.*)

THE author, whose examinations have been chiefly made on the brains of maniacs under the care of M. Esquirol, considers the gray substance of the convolutions as formed of six superposed layers, differing in structure and in colour: the first passing from without inwards is white; the second gray; the third white; the fourth gray; the fifth white; and the sixth gray. This stratification may sometimes be distinguished by the naked eye on a section of the brain; but M. Baillarger has for the most part made his observations by examining by light transmitted from a lamp a thin slice of brain placed between two glasses. In this way, the gray layers easily allow the light to traverse them, while the white reflect it and remain opaque, a fact which the commissioners of the report fully confirm.

The circumstances which, according to the author, have led previous observers away from the truth are that sometimes the two deep gray layers are atrophied, so that the two corresponding white layers confounded together cannot be distinguished from the medullary substance of the convolutions, and the whole of the cortical part here seems formed of but two layers; and that in other cases the middle gray layer is so thin that the two adjacent white layers are united, and the cortical substance looks all gray except a middle band of white.

The gray substance is not merely apposed upon the white, as Reil imagined, but the latter penetrates into the interior of the former. The fibres by which this union is effected are conical with their points directed towards the surface of the brain. They are very numerous and vertical towards the summit of the convolutions, but are less abundant and oblique on the sides, and lastly are very few in number, and are directed transversely towards the bottoms of the anfractuositities; some terminate in the most internal gray layer; others penetrate more deeply to the superficial gray layers, becoming thin where they pass through gray layers, and swelling when they arrive at the white ones. The white layers are in great measure formed by the above-mentioned swellings of fibrils; but they seem besides to possess fibrils of their own, which are parallel to the surface of the brain; at least, fibres of this kind have been found in dogs and rabbits.

The most external white layer of the cortical substance, which is immediately subjacent to the pia mater, is often torn off with that membrane when the part beneath has been a little inflamed. It may be separated from a healthy brain by placing a dry cloth for a few instants on the surface of the convolutions after the membranes are taken off; by raising the cloth the layer in question is removed with it. It seems of the same nature as the central white substance,

and it is remarkable that it often preserves its white colour in certain lunatics even when the subjacent gray substance is vividly injected.

The yellow layer which Gennari, Vicq-d'Azyr, and others ascribe as placed between the cortical and medullary parts of the brain, is the result (according to M. Baillarger) of an atrophy and discoloration of the deepest gray layer.

Contrary also to the opinion of Reil and Tiedemann, M. Baillarger has detected the gray layer of the convolutions from the age of four months of intra-uterine life, recognizing it, as in the adult, by its alternately gray and white stripes.

The discoveries of M. Baillarger (it is added by the commission) call the attention of pathologists to the different layers of the gray substance, which in certain cases, as in the insane, may be separately affected. The expectations, moreover, that their investigation may lead to important facts are not merely theoretical; they have been already confirmed by practical results. M. Foville long since pointed out the separate hypertrophy of the external white layer, and the inflammation of the gray layer beneath it in some cases of insanity, and his observations have been repeated by MM. Parchappe and Baillarger. Nor is it in a pathological point of view only that the importance of this stratification of the cortical substance is to be considered; it seems to be at least as important in physiology, for it appears connected with the functional perfection of the brain: it is well developed only in mammalia and especially in man, and it is never met with in birds, reptiles, or fishes, in which it seems to take refuge in the optic lobes, which, in this respect as in many others, form a kind of substitute for the cerebral hemispheres.

Bulletin de l'Acad. Roy. de Médecine. Fevr. 15, 1840.

On a Peculiar Monstrosity. By M. FÆSEBECK, of Brunswick.

IN a letter to Professor Müller on the arrangement of the cervical portion of the sympathetic nerve, the author mentions the case of a male child, twelve weeks old, and still living in his town, with a very singular abnormal formation. Above the umbilicus it is well made; but just to the left and a little above the level of that part there grows out of it a semitendinous cylindrical body, about an inch and a half thick and an inch long, on which there is a second pelvis with two extremities and sexual organs. These parts are placed transversely across the child's abdomen. The remarkable circumstance is that the child makes water through both penises; but that which flows from the second penis is only a turbid fluid like urine, and sometimes white and milky; and this last character is observed only soon after the child has been sucking.

[Probably the digestive canal of the perfect child divides at a short distance from the stomach, and a portion passes into the appended body, when it soon terminates in a cloaca, of which the urethra is one orifice.]

Müller's Archiv. 1840. Heft i.

On the Structure of the Macula Lutea (Foramen of Soemmering) of the Human Eye.
By Dr. GRUBE, of Königsberg.

THE author had previously made many observations on the structure of this part, but their results had been unsatisfactory in consequence of the length of time that had elapsed after death before the eye was removed. The examination here described is that of an eye taken from a body a few hours after an accidental rupture of the spleen.

The retina adhered so firmly to the vitreous humour that the greater part of the latter could be removed only by carefully cutting with scissors. With the naked eye it was at once easily discerned that the level of the macula lutea was not a little raised above the surface of the retina. On placing it and the part

around it under a microscope magnifying 300 times, and compressing it but slightly, the macula lutea presented exactly the appearance of shagreen. Longish-round corpuscles, which were smaller the nearer they were to the centre, and there not more than one fourth or one fifth of the size of the medullary corpuscles on the surface of the rest of the retina, were arranged close together and with great regularity, like rays passing from the centre to the circumference of the spot. Towards the circumference they became larger, and gradually merged into the form and size of the corpuscles of the rest of the retina. The circumference, however, did not form a regular circle, but the small medullary bodies radiated beyond it at some parts, to different distances from its outline.

Müller's Archiv. Heft i. 1840.

Notice of a New Monstrosity, a portion of a Fœtus living upon the Testicle.

By M. VELPEAU.

THE remarkable case here detailed is that of a tumour removed from the scrotum of a young man æt. 27. He had always had good health. The tumour, which was the size of a fist, had existed from birth, but was at first small and deemed unimportant: it had continued to grow slowly up to the time that the patient applied at La Charité. Various opinions were formed as to its nature; but M. Velpeau—considering that it was congenital and at first scarcely observed, that it had never given any pain and had excited no morbid process, that it was insensible to pressure, and might be cut or pricked or pierced through and through without giving the least pain, and observing the appearance of the skin that covered it which was quite different from that of the scrotum, as well as its elasticity and hardness internally, and a tuft of hair which protruded from a kind of ulcer at its posterior part, and a reddish tubercle at the bottom of another aperture anteriorly from which glairy and grumous matter had sometimes been discharged,—hit upon the idea that it was a fœtal tumour, a product of conception. He therefore determined to cut it off, to perform a *Cæsarian operation upon the man*.

On examining the tumour afterwards he found in it almost all the elements of a human body. Its exterior was evidently cutaneous, and the greater part of its substance was a mixture of lamellæ and fibres like cellular, adipose, muscular and fibrous tissues. In its interior there were two cysts filled with substance like albumen or the vitreous humour; another cyst as large as a partridge's egg containing a greenish semi-liquid matter like meconium; and a fourth containing a dirty yellow grumous mass surrounded by hairs; the mass consisted of sebaceous matter and scales of epidermis; the hairs had no bulbs. The tuft of hair that protruded externally, proceeded from the cyst that contained the meconium-like substance, and they gave the opening into it somewhat of the appearance of an anus. Lastly, in the midst of all these, numerous perfectly organized portions of a skeleton were found, consisting of bones more or less closely resembling the clavicle, scapula, humerus, sphenoid, sacrum, and portions of vertebræ, and others whose names could not be determined.

M. Velpeau remarks justly on the peculiarity of this case, that it is distinguished from all others of monstrosity by inclusion, by the second fœtus not existing as a foreign body in the other, but having a separate and independent existence and power of growth within itself. The tumour had its own colour and consistence, and a sensibility entirely independent of the individual to whom it was attached; the man himself several times pierced it with a knife without feeling the least pain, and yet all the wounds that were made in it bled and inflamed and cicatrized like those of any other part of the body. There was nothing in it that indicated the least morbid condition; all the substances found in it gave the idea of normal tissues or products, and not a drop of pus, nor any curies or necrosis of bone, nor any altered cartilage or the least fungous growth could be discovered.

The suggestions which M. Velpeau throws out for the explanation of this singular production are that it is a portion of a fœtus which in intra-uterine life became attached to the scrotum, and remained there like a graft; or that it is the remains of a fœtus which passed into the abdomen of another, and then having descended into the tunica vaginalis, at last gradually made its way through the envelopes of the scrotum; or that it is a separate creation, the product of the testicle alone.

Gazette Médicale. Fevr. 15, 1840.

On the Lymphatic Hearts of the Tortoises. By Professor MÜLLER.

THE tortoises were the only order of amphibia in which the lymphatic hearts had not been found, although the lymphatic vessels had been examined in them more frequently than in any others of the class. The author gives the following account of them in the Turtle (*Chelonia mydas*), in which of all the amphibia they are most easily found.

The two hearts lie under the posterior part of the great median plate of the shell. If the median line of this plate be divided into three equal parts, and through the points of division lines be drawn transversely across the plate at right angles to the median line, the second of these transverse lines which separates the second and third portions from one another indicates the position of the two hearts. If this transverse line be now divided into three equal parts, the two points of division will exactly mark their respective situations. To expose them a quadrilateral piece including these points must be cut out of the shell and carefully separated. A lymphatic heart lies on each side, just behind the upper extremity of the ilium; its lower wall rests upon the origins of the *musculus semi-tendinosus* and *semi-membranosus*, and its outer side is bounded by the inner edge of the origin of the *biceps*.

The heart is of an irregularly rounded form, rather flattened above, and, in a turtle of 140 lbs. weight, was an inch in diameter. On its outer side it received a bundle of very large lymphatic vessels which brought to it the lymph of the posterior extremities; and at its hinder part others which brought the lymph from the posterior portion of the abdominal walls.

Both hearts contracted regularly and powerfully three or four times in a minute, sometimes but not always synchronously. When one of them was cut out a quantity of lymph flowed from it at each contraction. After they had been examined for several hours, the turtle's head was cut off, but their movements still continued; and next day, when all the abdominal viscera were removed and the shell cut across, they still went on contracting, though more weakly than before. If the hind limbs attached to the posterior part of the divided turtle were now irritated, the common reflex motions of the animal muscles took place, and the lymphatic heart of the same side contracted.

The internal surface of these hearts is in general smooth, but the apertures leading into them from lymphatics are variously arranged. At all these entrances there are valves so placed that the heart can never drive the lymph backwards when it contracts. On the inner side of the heart there is a vein which is formed of the union of several smaller veins from the posterior part of the body, and which receives the very short efferent lymphatic vessels from the anterior and inner part of the heart. The vein then passes under the union of the pelvis with the vertebral column, and unites with several other veins from the muscles of the thigh into a considerable trunk, which becomes the *vena renalis adrebrans* and is connected with the umbilical vein.

The author's observations on the lymphatic hearts of crocodiles agree with those of Panizza. He has many times sought in vain for similar organs in fish, but he has no doubt of their existence in them as well as in amphibia.

Müller's Archiv. 1840. Heft i.

On the Microscopic Characters of the Menstrual Blood. By Dr. BUROW, of Königsberg.

Dr. Burow examined twelve ounces of menstrual blood which had been retained in the uterus by an imperforate hymen. The blood was of a dirty reddish-brown colour, of the consistence of syrup, very adhesive, and perfectly destitute of smell. It abounded in albumen, and was very little susceptible of putrefaction.

When looked at under the microscope almost all the blood-globules were seen to have lost their regular form and to resemble those granules which may be observed in pus which has been for a long time exposed to the air, or retained within the cavity of an abscess. These blood-globules were suspended in a transparent fluid. On stirring the blood for a considerable time no change perceptible to the eye was produced, but under the microscope a great number of delicate transparent lamellæ were seen floating in the serum, and these Dr. Burow regards as portions of fibrine, which substance is sparingly present in menstrual blood.

Müller's Archiv. No. vii. 1840.

Novel Researches concerning the Action of Madder on the Bones.
By M. FLOURENS.

THE novelties contained in M. Flourens' papers are the proofs of the remarkable rapidity with which nutrition is effected in the bones of young animals. Among the preparations exhibited to the Academy of Sciences was the skeleton of a pigeon between two and three weeks old, which had been fed on madder mixed with its food for only two days, and had taken at most three grammes of alizarine (an alcoholic extract of madder); its bones were deep red. Another preparation was the skeleton of a pigeon which had fed on alizarine for only one day and whose bones had all a distinctly red hue. A third was the skeleton of a young pigeon which was killed twenty-four hours after eating the only meal in which madder had been mixed with its food; all its bones were vividly red. A fourth was that of a pigeon which five hours after having taken food containing six grammes of madder was killed; the bones, though less coloured than those in the preceding cases, were yet very red: so that it appeared that for madder to pass through all the processes preliminary to nutrition, and to penetrate into and be incorporated with the bones, a period of five hours only was necessary.

M. Flourens confirms the results of previous experiments, that the madder has little or no influence in colouring the bones of old animals; and he states that the dyeing is effected with different degrees of rapidity by different kinds of madder. That from Avignon always required a larger dose and a longer time to produce a given effect than that from Alsace did.

Gazette Médicale. Mars 14, 1840.

On Dr. Marshall Hall's Doctrine of the non-participation of Sensation in the (so called) Reflex Motions. By F. NASSÉ, M.D. of Bonn.

THE object of the author in this essay is to show the supposed error of that opinion which was hinted at by Sir Gilbert Blane, but first assumed as proved by Dr. Marshall Hall, that neither sensation nor the psychical principle in general have any influence in the excitement of reflex motions through the medium of the spinal cord in beheaded animals. He enters into a rather long statement to show that many authors before Marshall Hall were well acquainted with the phenomena of reflex motion, and with their connexion with the brain and spinal cord, though they had no idea of excluding the mind from any influence in them. He quotes especially from Whytt, Legallois, Hales, and

Soemmering, and in no indirect terms accuses M. Hall of suppressing their opinions and some others which were adverse to the correctness and originality of his own.

To prove the correspondence between the motions of beheaded and those of uninjured animals the author maintains,—1st, that motions are observed in the former which are clearly indicative of purpose and intention; 2d, that these motions are performed not merely after external stimuli, but from internal impulse; 3d, that when they are excited from without they ensue most easily after stimuli, which would have excited the same or similar motions in perfect animals: and lastly, that they take place most easily after stimulating those parts which in uninjured animals are peculiarly sensitive.

The facts by which these four propositions are supported are drawn from various sources, and especially from the experiments of M. Hall and Grainger on beheaded animals. Most of them are generally known; and the evidence which they afford of the similarity of psychical condition in the beheaded and the entire animal in respect of perception and of capability of reacting upon impressions, *with purpose and intent*, seems to Dr. Nasse incontrovertible.

The next chief section is occupied with the consideration of the circumstances which indicate a difference between the psychical conditions in the two states. The most remarkable of these are: 1st, That an entire animal can be excited to motion by an impression of any of its senses, but a beheaded one only by those which act on the sense of feeling. 2d, That injuries of the parts that lie deeply beneath the skin produce few or no signs of pain in beheaded animals. 3d, That while an animal with its spinal cord divided moves the parts above the division whenever they are irritated, yet the parts below it are quite motionless, even when those above it are moving with the greatest activity—facts which are observed in men as well as in animals.

These objections the author opposes by showing: 1st, That when all the sensitive nerves but those of common sensation are removed from an animal it is only natural that motions should be excitable only by such impressions as in the perfect animal would act on the sense of touch. 2d, That the absence of signs of pain is not so distinct as it is commonly supposed to be, and that if animals do not move when deeply-seated parts are irritated they may yet have sensation of their skin; because the perception of pain and common sensation probably depend on different psychomatic functions, as insects, the surface of whose body has an exquisite sensibility yet will allow the cutting off of their antennæ or limbs without any indication of having suffered harm. 3d, That although in man when the spinal cord has been divided there is no longer any sensation in parts supplied from the lower portion, yet this may depend in some measure on the injury which that portion has at the same time undergone. In a case by Dessault, in which the division though complete was unattended by injury of the rest of the cord, voluntary motions of the parts supplied from below the division were distinctly observed: and in another by Ollivier when the separation from disease was found complete after death, there was distinct evidence of voluntary motion in the lower parts. In the lower animals, however, there is no doubt of intended motions being performed for definite purposes by the limbs which are entirely separated from the influence of the brain; they are constantly observed in beheaded frogs, insects, &c., and even in dogs and birds whose brains have been removed.

If therefore, the author concludes, we put together the results of these investigations the balance is not in favour of the doctrine which assumes that there is no direct psychical influence of the spinal cord. That which, before it was anatomically and psychologically considered, appeared to have but little foundation is proved by the undeniable intention of the movements which take place without the influence of the brain, and by the occurrence of such motions without any external stimulus, as well as by the proofs of sensibility continuing in the skin without the participation of the brain—to be an untenable opinion.

The rest of the paper scarcely admits of analysis. It treats chiefly of the

amount and kind of psychical power which the spinal cord may be considered to possess; and is concluded by a more detailed consideration of the nature of some of the actions which are performed under its influence when uncontrolled by that of the brain.

[We have thought it due to Dr. Nasse to present this statement of his views to our readers; but we by no means concur in their justice. The objections which he brings against Dr. M. Hall's views are in the main the same which were formerly adduced by Volkmann, and which we noticed at the time (Vol. VI. p. 211-17.) As to the objection founded on the *adaptive* character of the movements in question, we need say nothing in addition to what we then remarked (p. 213.) And in regard to other points our opinions have been fully confirmed by pathological evidence of the most satisfactory description in the recent paper by Dr. Budd, on the pathology of the spinal cord, in the *Medico-Chirurgical Transactions*. Now that the attention of practitioners is directed to the subject, we have no doubt that in a few years a body of cases of reflex action without sensation or volition will be collected quite sufficient to determine the question in dispute.]

Untersuchungen zur Physiologie und Pathologie. 1839.

Microscopical and Experimental researches on Softening of the Brain.

By PROFESSOR GLÜCK.

[We have pleasure in transferring to our pages the general results of the first attempt (as we believe) made to elucidate the nature of certain morbid changes of the brain by a practised micrographer, well acquainted with the normal microscopic structure of that viscus.]

1. Softening of the brain may be either partial or general. 2. The softened substance may retain its primitive colour, but this is the rarest form of the disease; under these circumstances there may be pus present in the softened fragments. The pus is often visible with the naked eye; more commonly the microscope is required for its detection: the nervous canals (or tubuli)* are mingled in fragments with the globules of pus. No morbid product is observable in the softened brain, but the nervous canals are, under the microscope, found to have lost their natural soundness, or to be reduced to fragments: this I have sometimes observed in the softened brain of typhoid fever; it is utterly unconnected with inflammation. I have not observed any distinct example of white softening accompanied with symptoms of paralysis, and independent of inflammation, but admit that some published facts render the reality of its occurrence very probable. 3. The colour is ordinarily changed to pink, yellow, or gray. The central substance presents, in the majority of cases of softening, and *invariably when there is no apoplectic effusion*, the peculiar *compound globules* already described,† which we have shown to be a product of inflammation, and susceptible of being produced in the various tissues of animals. These globules form in the capillary vessels, and obstruct the circulation: exhibition of the serum through the walls of the vessels follows, and causes *mechanical maceration* of the brain. The globules of the blood, as is well known, promptly communicate their colouring matter to the serum, hence the altered colour of the softened cerebral substance. Subsequently the vessels give way, and the compound globules mingle with the fragments of macerated brain. The nervous canals (or

* For the meaning of this term we must refer the reader to the account given in our Sixth Volume (p. 393, et seq.) of the discoveries of Ehrenberg, Treviranus, and others upon the normal intimate structure of the nervous tissues.

† "In one of the earliest stages of inflammation the blood globules lose their colour and size, run together into a mass to the number of thirty or forty, obstruct the interior of the vessels, and put a stop to the circulation; the accumulated masses are of blackish colour, and, for shortness sake, may be called *compound globules*. They are 1/30 of a millimeter and more in diameter."

tubuli) are only to be found in fragments and often lose their soundness. 4. The softening may take place round an apoplectic effusion; in this case I have observed two changes. In one of these, and more especially in apoplexy of old standing, compound globules are commonly found as the result of inflammation excited by the mechanical agency of the effused blood. In other cases imbibition of blood into the cerebral substance alone takes place, and produces maceration and softening without exciting inflammation. Softening may be very readily produced experimentally, by introducing a large pin into the brain of a rabbit; an effusion of blood gradually takes place, and consecutively softening of the cerebral substance surrounding the accumulation. It is only when the effused blood sojourns longer in the brain that inflammation may be established. The experiments which I have made do not in the least support the opinion held by some (e. g. Rochoux) that softening is a regular forerunner of apoplexy. Besides, why should not rupture of the capillary vessels from the impetus of the blood, or from some alteration of their structure, quite as plausibly explain the occurrence of hemorrhage as preexisting softening?

The following results may be easily verified by any one who possesses a microscope and even a superficial acquaintance with the structure of the brain:— 1. Pus is present in many examples of white softening. 2. In coloured softening without effusion of blood there is formation of compound globules. 3. Coloured softening with effusion of blood may present the preceding productions, or simply mechanical imbibition of sanguinolent serum; as is commonly the case in recent apoplexy. The greater number of cases of softening hitherto observed by pathologists belong undoubtedly to the second class, and are consequently results of a degree of inflammation, the nature of which had, until these researches were undertaken, eluded discovery.

*Archives de la Méd. Belge. Janv. 1840.**

Formation of Muscular Fibres in a dilated renal Pelvis and Ureter.

By Dr. TOURNAI, of Münster.

THE subject of this interesting paper was a scrofulous young man, twenty years old, who had suffered for many years from tuberculous disease of the urinary organs. At the examination of his body both kidneys were found twice as large as usual, and the ureters very much dilated. The urethra from the bladder to within three inches of its orifice was so dilated that it looked like a somewhat narrowed continuation of the bladder, and no limit could be seen between the prostatic and membranous portions and the bulb, the vesical orifice being marked merely by a transverse fold across the posterior wall of the bladder, and the prostate being so distended that it was scarcely discernible. All this dilated portion presented an ulcerated surface, which extended upwards into the thinned and condensed corpus cavernosum, the corpus spongiosum urethræ having been almost entirely removed. The lining of the bladder was almost all ulcerated and covered with pus, and its muscular tissue was excessively hypertrophied. Both the ureters were shortened and remarkably dilated, being nearly an inch in diameter by the bladder. The left kidney was hard and tuberculous, and made up chiefly of several large sacculi like cavities in the lungs. The walls of the corresponding ureter were thickened and hard and condensed by the effusion of lymph into its cellular and submucous tissues.

The more remarkable changes were found in the right kidney. Its pelvis was distended into a cavity capable of holding three ounces of water. The walls of the ureter were thicker than usual, but they were not morbidly thickened, nor did they exhibit any sign of inflammation having existed. The internal membrane was thrown into prominent folds which lay across its canal, and, when it

* The first number of a new Brussels journal which promises to prove an important acquisition to periodical literature.

was opened, gave it the aspect of a vesicula seminalis. This lining membrane was easily separated; and on the inner surface of the surrounding cellular tissue muscular tissue consisting of yellowish red circular fibres was evidently developed. The muscular fibres were plainest at the most dilated parts; and at the pelvis they formed a plexus like the fasciculi of the bladder, but finer, the fibres crossing each other at very oblique angles. In the pelvis, also, on the exterior of these circular fibres, fasciculi of longitudinal fibres were visible both anteriorly and posteriorly which expanded and were lost upon its walls. In like manner circular fibres were discerned at the lowest part of the ureter next the bladder; and longitudinal fibres upon the dilated part of the urethra which were covered anteriorly by the bulbo-cavernosus, and posteriorly were continued over the prostatic portion to the detrusor urinæ, and which could not therefore be regarded as belonging to the bulbo-cavernosus.

An examination of all these fibres left no doubt of their being truly muscular. Their yellowish red colour, their remarkable size, and their regular uninterrupted arrangement in rings along the whole ureter, all supported this opinion. They were moreover soft, slightly extensile, but scarcely elastic, and they tore across when they were stretched. The fibres were roundish, and connected together by cellular tissue; they did not pass into each other but were parallel to one another. Their situation also between a mucous and a cellular membrane, with each of which they were connected by cellular tissue,—their arrangement in an internal circular, and an external, though incomplete, longitudinal layer like the muscles of the whole digestive canal—the similarity of the dilated ureter itself to an intestine—the coincident hypertrophy of the muscular coat of the bladder and of the bulbo-cavernosus—and the evident uses that a development of muscles in these parts would have—are further grounds for the belief that these were actually muscular fibres.

A chemical examination was made of a portion of them from each part. On being placed in concentrated acetic acid, all the pieces became pale, transparent, and jelly-like, and on the following morning were dissolved into a whitish cloud at the bottoms of the glasses. On adding some drops of a solution of ferrocyanate of potash to these filtered solutions, they became turbid, exhibited some yellow flocculi, and by the next day had thrown down an abundant yellow-green precipitate which, on exposure to the air, became dark green.

The result of this analysis being confirmatory of the view already adopted, the fibres were next subjected to microscopic examination. With a power of 200 times they appeared of a clear greenish-yellow colour, and as it were clouded by their cellular sheath; transverse striæ could not be discerned upon them; but at their extremities, where the cellular sheath had retracted, the primary filaments were discerned in the form of constricted threads like strings of beads, which were straight or but slightly curved and parallel, and seemed composed of rather dark oval corpuscles. The transverse diameter of these filaments was about one fourth of that of a blood-globule.

These fibres were lastly compared beneath the microscope with those of all the other tissues with which it was possible they might be confounded, but they were found distinctly different from each, and there could be no reasonable doubt of their genuine muscularity. The author observes that this is the first case in which muscular fibres have been proved as the product of disease in a part where none previously existed; but he correctly adds that these are not to be regarded as the immediate result of a morbid process but as the effects of an exalted power of development comparable with hypertrophy. As far as previous examinations had gone, the human ureter possessed only a cellular and probably contractile tissue; but Meyer had shown that in the horse it is distinctly muscular; the present investigations prove that in man also it may, under peculiar circumstances, become muscular, its tissue passing through the transition from cellular to muscular, of which traces are to be observed in some other parts of the body.

PATHOLOGY, PRACTICAL MEDICINE, AND THERAPEUTICS.

Hemicrania and Facial Neuralgia cured by Compression of the Carotid Arteries.

By M. DUFRESSE.

"A working baker, æt. forty, consulted me on the 18th Nov. 1839, for a pain occupying the right side of the cranium and face, extending to beneath the lower jaw, and apparently seated in the facial nerve. The patient also complained of buzzing noise in the head and of tinnitus in the right ear; he was besides subject to vertigo, especially when employed in kneading, and required to be bled for this every three months. I now bled him to fifteen ounces. The following morning I learned that he had not slept, and had been in pain the whole night; I consequently prescribed an opiate liniment. Finding that no improvement had taken place in the evening I again bled him to eight ounces, under which he nearly fainted. On recovering he told me his pain was as severe as ever, but that while faint he had felt none. This recalled to my mind the cases published by M. Dezeimeris (*l'Expérience*, t. i., p. 65,) illustrating the effects of compression of the carotids, and I determined to give this plan a trial here. The following were the results:—1. *Compression of the right primitive Carotid for ten seconds.* Instantaneous disappearance of the pain, which returned one minute after removal of the pressure. 2. *Compression of the same vessel for fifteen seconds.* Again the pain disappeared instantaneously from its existing position, but shifted to the posterior part of the skull. This new pain ceased with the removal of the pressure, and two minutes after this the original pain reappeared on the right side. 3. *Graduated compression of the same vessel for thirty seconds.* The pain, as before, moved to the posterior left part of the skull. I then pressed on the left carotid, increasing the force here as I diminished that on the right side. The posterior pain disappeared, and no return of either had taken place ten minutes after. The patient slept well and made no complaint of pain in the morning."

L'Expérience. No. cxxviii. Dec. 1839.*Statistical Researches on Pneumonia.* By M. PELLETAN.

THE results in this memoir are drawn from 75 cases of purely inflammatory or bilious and inflammatory pneumonia, observed in M. Bouillaud's wards during the years 1834-5-6, with remarkable exactness and precision. After an orderly arrangement of his cases according to the date of their progress, the author deduces the following propositions:

1. Pneumonia of one lung is more frequent than double pneumonia, in the proportion of 7 to 2. The proportion found by M. Bouillaud was one double pneumonia in 13 cases; that established by M. Andral from 151 cases observed by himself was one in 15, and from 59 cases from various authors one in 7. M. Chomel in 27 fatal cases found nine cases of double pneumonia, that is, one in 3, and in another series of 32 cases he found seven with both lungs inflamed. The exact proportion therefore can be stated only after further researches, which must be conducted with careful regard of the age of the patient and the form of the disease; for it is found that double pneumonia is very much more common in young children and old persons than in adults; and it was more frequent than usual in those who were attacked during the course of influenza.

2. The right lung is more frequently affected than the left in the proportion of 5 to 2. This result accords with the observations of Hales and of Sauvages. M. Chomel also observed the right lung alone affected 28 times, the left only 15; M. Andral found the right alone inflamed 90 times, the left 33; M. Bouillaud, the right 15, the left 8 times; M. Lombard, in 968 cases observed by himself, Andral, and Chomel, found 413 cases of pneumonia confined to the right lung and 260 limited to the left (195 affecting both lungs). M. Gerhard and

others have also proved that the difference of liability of the two lungs is still greater in young children.

3. The base of the lung is more disposed to inflammation than its apex in the proportion of one and a half to one. This result also is confirmed by those of other authors, who all (except M. Chomel) have found a similar, though not exactly the same, proportion. M. Andral's results are very nearly the same as M. Pelletan's; M. Bouillaud's present a larger proportion in which the base of the lung was inflamed, and so do those of M. Valleix, which were drawn from the cases of young children.

4. Pneumonia is twice as frequent between the 17th and 37th years of age as at any other period of life. Previous authors differ widely in their expressions on this subject, and almost every period of life has been considered by some as especially liable to pneumonia; it is probable, therefore, that other conditions more powerful than the influence of age have hitherto obscured its real effects.

5. The most general direct cause of pneumonia, in at least seven ninths of the cases, is cold; a fact fully acknowledged by all other authorities under whatever circumstances their observations were made, with the exception of M. Chomel, a large proportion of whose pneumonic patients could assign no cause for their illness.

6. In 13 cases out of 14 the pleura opposite the pneumonic portion of lung was also inflamed, so that there was pleuro-pneumonia. This result is also confirmed by the observations of M. Andral on the pneumonia of adults; but those of MM. Vernois and Valleix show that the coincidence is not so general in very young children.

7. The number of arterial pulsations in the minute affords no exact measure of the degree at which the pneumonia has arrived, or thereby of its severity. M. Chomel agrees on the whole with M. Pelletan on this opinion; but M. Andral and most others ascribe more importance to the indication of the pulse, and regard its great frequency as one of the most alarming signs.

8. The frequency of inspiration is a more serious and important sign for prognosis than the degree of acceleration of the pulse. In all cases, the number of inspirations affords an exact estimate of the degree which the pneumonia has attained.

9. Prostration of strength and delirium are more particularly connected with inflammation of the apex of the lung. Delirium is one of the most serious symptoms, and in all M. Pelletan's cases was followed by death. The first of these assertions is on the whole, though not very distinctly, confirmed by the observations of others; the last accords with the opinion of all, though it is allowed that delirium may occur in the course of pneumonia from circumstances scarcely connected with that disease, and not indicate any peculiar danger.

10. In these 75 cases there were 21 of bilious pneumonia, of which 16 occurred in the cold months and 5 in the warmer season. It does not appear, therefore, that an elevated temperature has any influence in predisposing to the bilious form of the disease. Temperament seems more important in this respect; for in 20 of these bilious cases 11 were of a bilious or sanguineo-bilious habit. It was remarkable that in 17 of these 20 cases the pneumonia affected the base of the right lung, and in only three that of the left. Purely antiphlogistic treatment was as successful in these as in any other cases. All these cases of *bilious pneumonia* were actively inflammatory, and only differed from the rest in being accompanied by symptoms of affection of the liver, and especially by jaundice.

The second part of the memoir relates to the effects of the curative means employed. All the cases were treated on M. Bouillaud's plan of repeated bleedings; the amount of blood varying from 10 to 17 palettes (of about six ounces each), were always drawn in the first three or four days after the patient's reception into the hospital. In pneumonia of one lung, of the first and second

degrees of severity thus treated, recovery was the general rule and death a rare exception; only two cases in 55 terminating fatally. In double pneumonia similar treatment was followed by recovery in 11 cases out of 16. In all the cases, recovery took place between the fifth and seventh days of treatment, and between the ninth and thirteenth of the duration of the disease. Pneumonia of the third degree of severity was unaffected by this method of treatment; and both the patients on whom it was employed died.

The results of M. Louis's practice, as well as that of MM. Rilliet and Barthez among children, do not appear so favorable to this plan of bleeding, *coup sur coup*; but its value is entirely confirmed by M. Husson's cases, in which of 43 pneumonic patients bled from once to eleven times each, only three died, and these had the disease under very unfavorable circumstances.

In reference to the duration of the disease also the bleeding system appears equally advantageous; in these cases it continued from nine to thirteen days, while in 50 of M. Louis's, treated with less activity, the average duration was fifteen days; and twenty days in those who were bled between the fifth and ninth day of the affection.

Of blisters, M. Pelletan says that when employed after sufficient abstraction of blood, they never increased the fever, but appeared to have advantageous results; an observation which is on the whole confirmed by the opinions of other good authorities, from which it is deducible that counter-irritation is frequently beneficial in pneumonia affecting adults, always useful in that of old people, and sometimes so in that of children.

*Bulletin de l'Académie Royale de Médecine. Janvier 31, 1840.
(Abstract of the Report by M. Rayer.)*

SURGERY.

Calculus, weighing 23½ ounces, formed in the Urethra. By Dr. DA LUZ.

J. L. æt. thirty, a fisherman near Lisbon, had had a difficulty of passing urine from his infancy. From the same period also he had had a hard tumour in the perineum; and at a later date a fistula, which had healed spontaneously. The tumour, however, continued to increase, though without producing any inconvenience except from the distension of the parts around it, which becoming at last excessive, the patient came to the Hospital of San Joseph, at Lisbon.

At this time (1836) the tumour which projected into the perineum had a diameter of 5½ inches; its form was nearly that of a large pear; it occupied the whole scrotum, and caused great distension of its integuments. The testicles lay one on each side of the tumour; the penis in a normal state was in its front. The perineum, which was hard and very prominent, presented several irregular cicatrices, and here and there excoriations from the contact of a sedimentous, purulent, and fætid urine which constantly flowed by drops from the meatus. The catheter easily detected a foreign body in the urethra.

Two deep semi-elliptical incisions being made in front of and below the tumour, the base of a calculus was exposed on which there was a furrow corresponding to the septum scroti, which gave it a bilobed form. The incision being then prolonged towards the perineum the stone was drawn out with forceps, leaving a great cavity, at the bottom of which the prostatic portion of the urethra and the neck of the bladder were seen so dilated that the operator was able to introduce his finger into the bladder. The patient left the hospital in twenty-nine days; the operation was followed by no bad consequences, but a fistula remained in the perineum which healed in the course of the following year.

The calculus, which there is every reason to believe had passed when small from the bladder into the urethra where it became fixed, was, as already said, pear-shaped; the smallest portion of it corresponded to the neck of the bladder,

the larger end was enveloped by the membranes of the scrotum; two depressions were observed in its sides, where the testicles had rested; and two grooves in the under surface, one of which fitted upon the septum scroti, while the other extended along the whole length of the stone, and permitted the flowing of the urine. The composition of the calculus was phosphate of lime; it measured 5 inches in its longest diameter, and $3\frac{1}{4}$ inches transversely; its weight was 23½ ounces.

Revue Médicale. Février, 1840.

(From the Lisbon Journal of the Medical Sciences. Feb. 1839.)

Extirpation of nearly the whole of the Clavicle. By Prof. RIGNOLI, of Pisa.

THE subject of this operation was a carrier, thirty-four years old, who had always enjoyed good general health. In August, 1838, while lifting a sack of grain, he felt a pain in his left shoulder which ceased after a short time. Not long after, however, it reappeared in the region of the clavicle, affecting him especially every time that he returned to his work; and at the end of about ten days it became incessant and prevented his sleeping. The suffering part, as well as those adjacent to it, now rapidly swelled, and the application of leeches and other means were ineffectual in restraining the inflammation that ensued; suppuration took place, and the matter made its way out by ulceration through the skin. In November, when the patient presented himself at the Clinic at Pisa, a considerable extent of the clavicle was found to be in a state of necrosis; the patient was emaciated and had hectic fever; and after incisions over the dead bone and some other means had been employed without any benefit, it was determined to extirpate the clavicle.

For this purpose, the patient being seated, an incision was made through the track of the several ulcers over the clavicle and prolonged to each extremity of that bone, so as to pass a few lines over each and especially over the sternal end. The bone being thus exposed a portion of its diaphysis was found almost isolated, and this being seized with strong forceps was with little difficulty extracted. The two extremities still remained; the sternal was in a state of necrosis, but the acromial appeared healthy: the former was disarticulated by cutting with scissors, and the latter (which was but a small portion) was left. The operation was rendered peculiarly difficult by the tissues having lost all their natural appearance so that it was impossible to recognize any anatomical relations for the guidance of the knife. There was no bleeding from any considerable vessel nor was any artery tied; the subsequent progress of the case presented nothing remarkable, except that in the inflammation which followed the operation the acromial portion of the bone became necrosed, and some pieces of it were extracted. The extirpated portion of bone was ultimately replaced by a dense tissue of fibrous consistence: the patient was enabled to move his arm in all directions without any difficulty, and, with the exception of slight weakness of the limb, the consequence of its want of exercise, everything was restored to its normal condition.

Annali Medico-Chirurgici di Roma. Vol. i. 1839.

On Subcutaneous Wounds. By M. JULES GUERIN.

IN these papers, which form a summary of the very bold practice of the author in this novel branch of surgery, his chief endeavour appears to be to point out an explanation of the peculiar pathology of subcutaneous wounds; that is, of wounds of considerable extent made in all the tissues beneath the skin through a very narrow opening in it. The following abstract, however, contains what appears to us a more useful part of the memoir, and by showing to what an extent the practice may be safely carried will prove that it should be adopted in every possible case in which inconvenience is feared from exposure of the wounded tissues to the air.

"I took (says M. Jules Guerin) two dogs of moderate size, the one young the other an adult. In the former I made a subcutaneous division of the mass of muscles in the posterior grooves of the vertebral column in three places; one in the superior scapular region comprising the trapezius, rhomboideus, serratus posticus, sacro-lumbalis, and longissimus dorsi, and the two layers of inter-transversales; a second through all the muscles and aponeuroses in the middle of the back; and a third at the level of the third lumbar vertebra, implicating in like manner the whole width of the sacro-lumbalis and longissimus dorsi. After these, I cut transversely beneath the skin through the flesh of the posterior and upper part of each thigh quite down to the bone, so as to divide the glutæus maximus, biceps, semitendinosus, semimembranosus, vastus internus, adductor magnus, and the sciatic nerve and corresponding vessels. Each of these sections was made with a very narrow knife introduced through a small hole in the skin at some distance from the main incision; and to secure more effectually the exclusion of the air I closed the openings in the skin with sutures.

"In the adult dog I made a long wound under the skin, extending from the lower part of the neck to the sacrum, parallel to the line of spinous processes, so as to divide all the muscles down to the arches of the vertebræ. I then made a transverse section of all the tissues at the back of the left thigh from beneath the skin to the bone, as in the former case, and closed both the little openings in the skin with sutures.

"In the first dog immediately after the operation there were slight effusions of blood under the skin at the divisions of the vertebral muscles; and a considerable quantity of fluid poured out at those of the muscles and vessels of the thighs. In the second dog there was an effusion without any considerable swelling all along the hollow of the vertebræ corresponding to the wound, and an immense effusion in the thigh, so that the size of the buttock was doubled, and the skin was made round and tense.

"Both dogs passed the night quietly, and on the next day neither of them had the least appearance of fever. On the day after they appeared better, eating and drinking as usual, and beginning to move about freely. No trace of the operations on the muscles of the spine could be found in either of them, and in the thighs there was much less tumefaction and no pain on pressure. On the fourth day the oldest of the dogs seemed to have forgotten his mutilations; he was walking and running and jumping about all day, exactly as he used to do before the operations. Next day, however, his wounds were a little tender; but on the following he was again perfectly well and every tissue that had been divided was united and perfectly restored to its former functions.

"In the younger dog the phenomena were still more interesting; none of the five wounds excited the least sign of inflammatory reaction: on the fourth day he began to raise himself up on his hind legs (which had of course been completely paralyzed), and on the eighth he could walk; he now presents scarcely the least trace of paralysis.

"Here, therefore, are examples of subcutaneous wounds implicating a great extent of tissues, dividing muscles, aponeuroses, vessels, and nerves, and followed by considerable effusions beneath the skin, and yet cured, nay even organized immediately almost, as if there had been but a simple lesion of the skin itself."

On the assurance afforded by the results of these experiments M. Guerin has divided the human muscles to an almost equal extent in thirty persons affected with curvature of the spine. The operation was followed in all, he assures us, with considerable benefit; and on only one occasion did there result from it the least inconvenience; in that case there was an unimportant diffusion of air along the track of the wound.

Remarkable Case of Hernia of the Fallopian Tube, with Dropsy of the Hernial Sac.
By M. A. BÉRARD.

MADAME B. æt. forty-five, has habitually enjoyed good health, complaining only within the last few years of occasional weakness in the loins and transient pain in the lower part of the abdomen; has had two natural accouchements and has never worked at any laborious trade. Two years since she perceived a small tumour, disappearing on pressure, in the right groin, for which she was recommended by her medical attendant to wear a bandage; this advice she neglected; the tumour slowly increased in size, continuing to be reducible. In December, 1837, its growth became more rapid and the abdominal pain more acute than usual. At this period, M. Bérard and another practitioner ascertained the following particulars: in the right groin is seated a tumour larger than a hen's egg, stretching somewhat towards the abdomen and right labium, with a broad base and even surface, except internally and superiorly, where a mammillary body about the size of the top of the finger protrudes above the rest; here, too, the skin is adherent, exceedingly attenuated, and slightly bluish; elsewhere the integuments of the swelling preserve their natural characters. The tumour is painless, irreducible, and unchanged in size by long-continued pressure in various directions; percussion shows that it contains no gas; it is manifestly fluctuating in every part, and, judging from its perfect transparency, is filled with serosity. The patient affirms that the tumour still returns into the belly, when she has lain for some time in bed. A hard round body, of the size of a turkey's egg, protrudes above the pubis; by a vaginal examination this is found to be developed in the body of the uterus. From these facts we inferred that the patient had one or more fibrous tumours in that organ, and that on these depended the abdominal pain and weight in the loins and pelvis. We set aside all idea of strangulated hernia, and considered the inguinal tumour caused by a serous cyst developed in the part, or by an old hernial sac, closed by adhesion at the neck and affected with dropsy. The patient becoming anxious for its removal, M. Marjolin's opinion was had; and the diagnosis now made was: femoral hernia of long standing; dropsy of the sac, which contains, besides, some abdominal viscus, probably a piece of omentum; complete adhesion of the latter with the neck of the sac, whereby the passage of the contained liquid into the abdomen is prevented. The tumour was now punctured with a trocar at its most prominent point, and from six to eight ounces of citron coloured, frothy serosity, becoming gelatinous by heat, drawn off. After this evacuation a round body, of the size of a small nut and irreducible, was distinctly felt in the femoral ring, and ceased to be felt behind the crural arch. Compresses steeped in aromatic wine were spread on the sac, to excite adhesion of its sides. In the afternoon a fit of shivering came on and the tumour grew painful; the following morning the latter had refilled; skin red and hot; general prostration. (twenty-five leeches to the tumour.) *Third day.* Abdomen painful and distended; vomiting. The tumour, incised freely, discharges much lactescent serosity. *Fourth day.* Erysipelas about the tumour, (thirty leeches.) Pallor, pulse small in the day, rose in the night. *Fifth day.* The sac suppurates. *Sixth day.* Symptoms of peritonitis evident, (mercurial friction, blisters to the thighs.) *Seventh day.* Death. *Dissection.* Sero-purulent effusion in abdomen, false membrane on the intestines, &c. The interior of the cavity of the tumour is lined with an albuminous exudation, and communicates by a perfectly free opening with the peritoneal cavity, behind Poupart's ligament; this is evidently the neck of a hernial sac: the opening is two or three lines wide and corresponds to the femoral ring. *The hernial sac contains nothing but the Fallopian tube in a state of considerable hypertrophy; there is no adhesion between the tube and the interior of the sac, but the former is closely united to the anterior part of the circumference of the latter; in the space where these parts are not adherent there exists a free communication between the peritoneum and the interior of the cavity containing the serosity. The ovary of the right side occupies its usual position in the pelvis; the tissue of the uterus, otherwise healthy, is distended by an enormous*

fibrous tumour. From the appearance of the parts it is very possible that be liquid in the sac may have gradually oozed during the night through the opening; though the sudden pressure used in the taxis, by forcing the displaced tube into the narrow passage, may have stopped the latter up completely. In this manner the assertion of the patient respecting the disappearance of the tumour in the night, is reconcilable with the fact that it was irreducible by art.

[Cases of hernia of the Fallopian tube without the uterus or ovary are extremely rare; the erudite editor of the journal from which we make this extract has only been able to discover two such cases, and the nature of one of these cases is not wholly incontestable.]

L'Expérience. No. xcii. *Avril*, 1839.

Reduction of Strangulated Inguinal Hernia by the method of Dr. Hesselbach.

By Dr. LYNCKER.

[THE following case is well worthy of consideration: it belongs to the rude, rough, common-sense surgery of the old time, now, perhaps, too indiscriminately banished from practice.]

Dr. Lyncker attended (April 25) a cachectic old woman, who had suffered for four days from a strangulated inguinal hernia. The belly was swollen, but not painful; the seat of the rupture was painful, but without any other perceptible change. The taxis was ineffectually employed. Leeches, cold applications, and tobacco clysters were made use of. On the following day the taxis was again resorted to but without effect.

During the night of the 26th and on the 27th of April, there came on facial vomiting, with great restlessness, anxiety, and debility; but there was no change in the situation of the hernia. The taxis was again carefully employed, but made no impression on the swelling. The patient would not submit to an operation. Dr. Lyncker bethought himself of the method of reducing intestinal ruptures, thus described by Dr. Hesselbach. "A strong man should place himself at the end of the bed on which the patient is lying, and, placing the legs of the patient over his shoulders, so that each knee of the patient shall rest upon one of his shoulders, his feet hanging downwards, shall then raise up the patient. The thighs of the patient are thus drawn upwards, his head and body resting upon the bed. In this position the taxis is to be repeated."

By placing the patient in the position above described, and reemploying the taxis, the ruptured bowel was suddenly reduced.

Wochenschrift für die Gesamte Heilkunde. No. xxvi. 1839.

On Amputation of the Penis. By M. BARTHELEMY.

"I published in 1829 the description of a new mode of proceeding in cases of amputation of the penis, the peculiarity of which consists in the introduction, before performing the section, of an elastic gum catheter, which is made to abut against the posterior wall of the bladder. Objections have been made to this plan: it has been said that the end of the catheter left in the bladder, after the amputation of the organ, must slip into that viscus; experience shows, on the contrary, that it springs forward from the elastic reaction of the bladder. The plan has also been declared useless; but experience destroys this objection also, for after the division of the penis, the urethra sinks inwards in such a manner that it is always difficult and has been *sometimes impossible* to find its orifice. The following facts prove this: M. Béclard, of Strasburg, amputated a penis in presence of M. Casimir Broussais, and being utterly unable to find the orifice of the urethra, was obliged on the following day to puncture the bladder through the rectum; the canula having accidentally escaped, it became necessary to puncture above the pubis, an operation subsequently several times repeated;

the bladder was in a deplorable state, when the patient fell a victim to a most seasonable attack of smallpox. M. Gimelle having amputated a penis, was unable to find the urethra, and his patient died in consequence of infiltration of urine. MM. Mirmont and Bury were, in two cases, (and I have read of a similar one in the *Lancet*,) unable to find the canal for a quarter of an hour. Whether this difficulty depend upon retraction of the mucous membrane of the urethra, like that observed to take place in the arteries of lacerated parts, or upon investment of the orifice of the canal by the neighbouring spongy tissues, is not easy to determine; the important point is that such difficulty arises, and that it may be obviated by the precaution I recommend. In the performance of the operation it must be borne in mind that a pliable catheter is requisite, and that this must be carefully made to abut against the posterior wall of the bladder. An assistant should be placed to the right of the patient, and placing his left hand on the pubis, press the tissues by means of the index finger and thumb with some force against the catheter, while with his right he supports the part of the instrument protruding from the urethra. If the disease have spread too close to the pubis to admit of the fingers being placed as just directed, the canal may be pressed from below upwards behind the scrotum. The operator then cuts with a small amputating knife through the penis and catheter at a single stroke. The assistant then ceases to press upon the latter, which immediately springs forwards; the operator then draws it out about three inches and fixes it in its place in the ordinary way." Five cases are referred to wherein this plan was pursued with success.

Gazette Médicale de Paris. Nov. 1839.

On the Facial Hemiplegia of Newly-born Children. By H. LANDOUZY, M.D.

This affection is attributed by Dr. Landouzy to pressure exercised by the forceps upon the seventh pair of nerves. He then speaks of the conditions in the infant which he supposes capable of rendering this pressure efficient in the production of paralysis. In the adult, the projection of the mastoid process, of the external auditory canal, and of the sterno-mastoid muscle prevent any pressure upon the seventh pair at its exit from the pars petrosa; but in the newly-born child, the almost entire absence of the mastoid process, and the exceedingly small development of the external auditory canal permit the compression of the nerve by the forceps, especially when the parietal bone is the presenting part. But it is rarely that the pressure takes place in this direction. And it may be exercised upon branches instead of upon the trunk of the nerve; under which circumstances the symptoms will be found to vary in accordance with those portions of the nerve which have been compressed. Although Dr. Landouzy knows no other cause than this compression which produces the paralysis which he describes, he does not assert that other causes may not produce it; such, for instance, as tumours in the pelvis, irregularities in the pelvic bones, &c. And a compression by the forceps may have been sufficient to produce paralysis, without having left any marks on the face of the child, as is shown by a case here referred to. In connexion with this fact, Dr. Landouzy properly remarks, that "when we consider that the most distinguished practitioners readily admit the existence of effusions where the disease is a purely local affection of a nerve, the importance of insisting on this peculiarity in the facial paralysis of newly-born children becomes manifest, i. e. that the forceps may have exercised sufficient pressure upon the seventh nerve to paralyze it, without leaving any external evidence of its action." It is evident that a proper knowledge of the nature and origin of this disease is important, in order that no such remedies may be employed for its cure as would be injurious to the health of the infant, and which at the same time would have no effect in cutting short the disease. The difference in symptoms between this affection in the newly-born child and the adult is, that whilst in a state of rest, and during moments of

perfect calmness, the expression of the child's face is scarcely at all changed. It is immediately after birth, and whilst the child is crying, that the first symptoms are noticed, and then they are particularly marked. The commissure of the lips is much deformed; the ala nasi is less dilated and less moveable than on the healthy side, the eyelids widely opened, whilst those of the sound eye are shut. All these appearances are increased with the increasing cries of the child. These marked appearances cease almost completely when the cries cease. But in the adult, the deformity although less during a state of repose is then also very decided. Another difference between the disease as happening in the child and in the adult is, that in the former, the symptoms spontaneously cease in a period varying from a few hours to two months. And it should be remembered that the treatment required, in the majority of cases, is simply hygienic. These remarks on symptoms, progress, and treatment, apply only to the facial paralysis which is produced by pressure of forceps during delivery.

Gazette Médicale de Paris. 1839.

New Method for the radical Cure of Varix, and especially of Varicocele.

By M. RICORD.

AFTER pointing out the errors of believing that varicocele affects only persons of twenty or thirty years old, and imagining it to be a common consequence of gonorrhœa or epididymitis, whereas in fact it is more generally a predisposing cause of the latter disease, and instead of being produced by it is more often cured by it; M. Ricord proceeds to describe his mode of operation.

"The hair must be shaved from the genital organs on the side to be operated on, and the veins must be dilated by making the patient walk about a little, or by enveloping the scrotum for a few hours in hot poultices, or by fomentations. This being done (though if the swelling is at all times considerable these precautions are unnecessary), the vas deferens must be separated from the mass of veins, and the latter being taken up with a fold of the scrotum, a flat lance-shaped needle armed with a double-looped thread must be passed beneath them. When the needle has been passed completely through the skin from one side to the other, the veins are to be let go, the skin alone being now held up, and then a second needle similarly armed must be passed through over the veins, entering at the same hole by which the first needle was thrust out, and passing out at the same hole by which the first entered. The bundle of veins is thus fixed between two double threads, of which one passes over and the other beneath it. The ends of each double thread on each side are then to be passed into the loop of the other, and now by drawing these ends in opposite directions the vessels are tied beneath the skin. By this kind of ligatures the vessels may either be suddenly constricted or be tied gradually in a manner something like that adopted by M. Breschet, or most conveniently by a properly adopted *serre-neud* after the fashion of a tourniquet.

"It is usually from the tenth to the twentieth day that the vessels are divided by this means, and their division may be easily recognized by the freedom with which the ligatures may be drawn from one side to the other without being, as they were before, retained by the parts which they inclosed. It sometimes happens that at the instant of the first constriction the patient suddenly feels rather an acute pain in the course of the spermatic cord; it is usually less severe than in the other operations for the same purpose; and though it often recurs at the successive constrictions, yet it has never been long continued, nor given rise to any accident. It is sufficient to keep the scrotum raised, to employ some anodyne frictions on the inguinal canal or the lumbar region, or to apply some emollient poultices, to effect its removal. Sometimes a slight œdema of the scrotum supervenes, and I have twice observed rather a considerable serous effusion in the tunica vaginalis. In one patient also, who went out of the hospital and a few days after the operation exposed himself to great fatigue, a

slight abscess formed in the cellular tissue; but with these exceptions there has been no important accident.

"It must be clearly understood that if the patient is strong and plethoric he is to be bled from the arm directly after the operation; that the horizontal position must be maintained till the vessels are cut through; and that the bowels must be carefully kept open.

"Twelve patients have now been operated on in this manner at the Venereal Hospital, and in all the most complete and satisfactory result has been obtained. The three last of them were presented at the Academy of Medicine; two completely cured, and the third, who was operated on only two days previously, still wearing the ligature and the *serre-nœud*.

"I have employed the same method for varices of the legs. I have already operated on nine patients, some having simple varicose swellings, and others varicose ulcers. In some a single ligature was sufficient, in others as many as four were applied. In none have there occurred any symptoms of phlebitis; the varicose veins have been obliterated and the ulcers speedily cicatrized; and in one of the patients whom I saw six months after the operation, there was no relapse. Still, however, I do not think that this method is likely to be so successful in all cases of varices of the lower extremities as in those of varicocele."

Bulletin Générale de Thérapeutique. Mars, 1840.

New Plan for Amputating through the Tarsus. By M. C. SEDILLOT.

The author proposes by this plan to remedy the inconveniences which have often followed the operation of partial amputation of the foot, as practised by Chopart and modified by Lisfranc and others, in consequence of the wound and the cicatrix succeeding to it having a semicircular form, with its longest diameter opposed to that of the os calcis and astragalus, and commonly extending round three fourths or at least two thirds of the circumference of the stump. This form of wound and cicatrix is constantly produced, whether the operator make both a dorsal and a plantar flap or only the latter. M. Sedillot's plan will undoubtedly remedy this defect, though more experience than has yet been obtained of its success on the living subject is necessary before it can be expected to supersede those in more general use. He describes it briefly as follows:

"The patient lying down or being seated with the leg flexed on the thigh, I find the articulation by the position of the malleoli and the prominences of the os scaphoides and the posterior extremity of the fifth metatarsal bone, of which the distances from the line of articulation are well enough known. Then grasping the dorsal aspect of the foot with my left hand, at the level of the anterior extremities of the metatarsal bones, I place the heel on the edge of a table, so as to have a convenient and firm point of support to stretch the ligaments and separate the articular surfaces as soon as their ligamentous connexions are divided.

"With a small amputating knife I make a first transverse incision, beginning a few lines in front of the calcaneo-cuboid articulation, and terminating on the middle of the dorsal aspect of the foot on the outer side of the tendon of the tibialis anticus. From this latter point I carry a second oblique incision, from behind forwards and from without inwards, which turns round the inner edge of the foot at two fingers' breadth behind the metatarso-phalangeal articulation of the great toe, and is then continued from before backwards, from within outwards, and from above downwards across the plantar aspect of the foot, to the point at which the first incision was commenced. I take care always to divide the integuments of the sole with an oblique bevelled edge, so as to free them as much as possible from the cellular and adipose tissue which might retard their union. I now dissect back the inner flap, which is thus cut out to as far as the tubercle of the os scaphoides, which I take as a guide to open the medio-tarsal

articulation, cut the interosseous ligament, slide the knife between the osseous surfaces, and complete the operation by dividing the deep muscles at the level of the incision in the sole."

In this operation the wound, of which the direction corresponds to the longest diameter of the articulation, extends only from the outer edge of the foot to the middle of its dorsal aspect, and though it occupies less than a third of the whole circumference of the foot, yet it is equal to the depth of the calcaneo-cuboid and astragalo-scaphoid articulations; for one of its extremities touches the anterior, inferior, and external edge of the os calcis, and the other the summit of the head of the astragalus. It is therefore on this incision that the cicatrix has afterwards to form; and the skin of the external and superior portion of the foot is alone opposed to the great internal flap, comprising its inferior, internal, and a part of its dorsal aspects. The cicatrix will therefore of necessity be linear and very small.

Another advantage is the smaller quantity of integuments which the medio-tarsal amputation requires. In fact about an inch of skin preserved on the inner side of the foot in front of the os scaphoides is sufficient to cover the bones, and thus the preservation of the foot is rendered possible in cases in which it would otherwise be necessary to amputate the leg. The facility of dividing the tendons of the tibialis anticus, and of the extensors of the first and second toes more anteriorly, is a favorable circumstance for the preventing the drawing-backwards of the stump; and the wound having the same direction as the articular surfaces is well supported and the more disposed to remain united because the inner flap is formed of integuments which, though not very thick, are sufficiently vascular.

Gazette Médicale. April 18, 1840

MIDWIFERY.

Case of a Dwarf in whom Premature Labour was artificially induced with success.
By M. PAUL DUBOIS.

C. L. was born in Italy, from a mother of ordinary stature and a father only three feet and a half high, though straight and well-proportioned, who was himself the son of a dwarf, and had three dwarf sisters. He had six children, of whom three were born and remained dwarfs, and three were born well-developed and acquired the ordinary stature.

Caroline (the subject of the present observations) presented in her early infancy nothing remarkable except her extreme diminutiveness. She was brought up with facility; she menstruated without difficulty when eleven years old, and the catamenial function has since been regularly performed, the quantity of fluid discharged being nearly the same as in a woman of ordinary size. When twelve years old she was brought to France with one of her dwarf brothers, and both were for some time publicly exhibited. At the conclusion of this engagement, when about twenty years old, she formed a connexion with a man of ordinary stature; the sexual intercourse was at first extremely painful, but she soon became pregnant. She went to the full period of gestation without anything remarkable occurring, and on the 3d of April, 1838, the first labour-pains occurred.

At first the labour presented nothing peculiar; the pains were regular, the dilatation of the os uteri complete, the membranes burst of their own accord, and well-sustained expelling efforts continued without result till the next day. On the 5th she was attacked with convulsions, which were repeated several times, and produced first an occasional and then a permanent state of stupor. A physician was called in, but considering that the expulsion of the child could not be effected without artificial aid, he called in M. P. Dubois.

The little patient was then lying in a cradle in that sleepy state which suc-

ceeds to attacks of eclampsia, and occupies the intervals between them; there was complete abolition of sensation and intelligence, and relaxation of the limbs. The child's head was found partially engorged in the upper aperture of the pelvis, projecting into its hollow; the os uteri was completely dilated; and having ascertained that the child was dead, M. Dubois determined on applying the forceps. Notwithstanding the apparent disproportion between their size and that of the patient, they were easily though unsuccessfully applied; but without removing them, M. Dubois introduced between their blades a pointed bistoury, with which he perforated the child's head. The greater part of the brain was at once evacuated, and the head passed on to the vulva; but the small size of that aperture rendered its rupture inevitable, and it tore obliquely towards the right buttock round the anus, but leaving the sphincter uninjured.

The child without its brain weighed five pounds and a half, and was seventeen Paris inches and a half long. The mother remained in the same sleepy state till the next day, and then on recovery had no recollection of anything that had passed; the delivery was followed by some inflammatory symptoms, but they yielded to appropriate treatment.

Before leaving her, M. Dubois ascertained that the antero-posterior diameter of the upper part of the pelvis was only nearly three inches; he therefore told her her danger, and advised her if she again became pregnant to come to him very early. In September, 1839, she wrote to him that she was again pregnant, and with some difficulty the date of her conception was fixed at the early part of June; she was carefully watched during the following months, and on the 13th of February, 1840, the uterus having in the few preceding days increased considerably in size, M. Dubois determined to excite the contractions of the uterus.

At half-past nine in the morning, a common speculum being passed into the vagina, a piece of prepared sponge, about an inch and a half long, and cone-shaped, with a base from six to eight lines in diameter, was introduced by means of a long pair of forceps into the os uteri. It was fixed in its place by a second larger piece, and threads were adapted to both so that they might be drawn out as soon as it was necessary. The patient was scarcely placed in her bed again before she felt some slight pains; forty grains of ergot of rye were almost directly after administered in doses of five grains every ten minutes; and during its administration the pains became gradually stronger and longer, and from eleven to twelve o'clock followed each other very rapidly and were well-sustained.

At half-past twelve the sponges were withdrawn, and that in the neck of the uterus was found of four times its previous size. The orifice would easily have admitted the tips of two fingers, but as it was rather rigid, some extract of belladonna was applied to it. The pains continued increasing; and at half-past one the membranes could be reached though rendered too tense by the great quantity of liquor amnii to permit the mode of presentation to be detected. The pulse was regular, at ninety-two. From half-past two to half-past three the pains diminished; they then again returned but at long intervals, during which the patient fell into a state of profound sleep. At half-past four she was bled to four ounces and the pains soon became stronger. At half-past six she had nausea and vomited some mucus containing a little ergot of rye. From that time the pains ceased, and the patient slept calmly till eight in the evening, when a few slight uterine contractions again took place.

The dilatation of the os uteri was scarcely altered, and the cervix retained nearly the same length up to eight o'clock. The membranes were then ruptured and a great quantity of fluid evacuated; the fœtus approached the orifice of the uterus, and the buttocks were found presenting. From this time the pains were regular; at eleven the cervix was almost completely obliterated, and at midnight its dilatation was nearly perfect. At one o'clock the pains were less vigorous and frequent, and forty grains (five every ten minutes) of ergot of rye were administered, but were nearly all rejected by vomiting. At three the same

quantity was administered in an enema; the uterine contractions then returned with full force, and by seven in the morning of the 14th the buttocks presented at the vulva. M. Dubois now hooking his fore-finger round one of the haunches, extracted the trunk without difficulty, and then disengaged the arms. The head was for some time arrested at the upper strait of the pelvis; tolerably powerful traction, during which the infant inspired several times, was necessary; and at last the head passed through and the child was in another instant born.

It was a little girl, which was at first weak but very quickly recovered. The expulsion of the placenta was followed by rather considerable hemorrhage, but it was checked by friction. The mother's recovery was rapid and natural.

The infant at birth weighed three pounds and three quarters; its total length was fifteen inches; from the vertex to the umbilicus it was eight inches and one sixth; the occipito-frontal diameter of the head was three inches and a half; the occipito-mental was four inches and a quarter; the bi-parietal three inches; the sub-occipito-bregmatic three inches and one eighth. The mother was three feet three inches high, and on the whole well proportioned.

Bulletin de l'Académie Royale de Médecine. Mars 31, 1840.

On the Funic Bellows-sound. By Dr. DIETRICH.

IN addition to the placental murmur and those accompanying the pulsations of the foetal heart, there is a third sound occasionally to be heard in pregnant women, and one which is well ascertained to have its seat in the umbilical cord. It is a single murmur of the bellows' species, and synchronous with the first sound of the foetal heart. Dr. Dietrich is of opinion, herein agreeing with others who have examined this subject, that the sound depends on diminution of the caliber of the umbilical arteries either through pressure or stretching of the funis or both combined. He gives cases illustrating its production under these different conditions. In the first, wherein the bellows-murmur is presumed to have been the effect of pressure, the umbilical cord was of the unusual length of twenty-four inches and a half, twisted once round the neck and tightly knotted in its middle third; the knotted part having acquired from its tightness a white, shining, tendinous appearance. In two cases exemplifying the occurrence of the sound in consequence of a tense state of the cord, this was only ten and fourteen inches long, and this unusual shortness led to greater tension in the former instance from the presentation being a breech one; in neither case was the cord twisted round the neck. In the example of production of the sound from pressure and stretching combined, the navel-string was twenty-three inches long, of normal structure, and wound twice round the neck; the accoucheur was obliged to cut it during delivery, finding it impossible to slip it over the head. Here the peculiar sound was invariably heard on every examination; an unusual circumstance attributed to the tightness with which the cord was twisted, whereby change of position or other occurrences, sometimes causing a temporary cessation of the sound, were rendered of none effect.

Medicinische Zeitung. No. xxxvii. 1839.

On Compression of the Abdominal Aorta in cases of Violent Flooding after Delivery. By Dr. EHRENRICH.

A WOMAN after having been in labour for thirty-four hours, and the liquor amnii discharged for thirty, was then, on account of narrowness of the pelvis and the absence of pains, delivered with the forceps of a healthy living girl, her first child. The separation of the placenta soon followed; not a particle of it was left behind, and the uterus contracted regularly. A very moderate quantity of blood had been lost during and immediately after delivery. Two hours after I was hastily summoned, and found the woman in a fainting state, the countenance collapsed, and of death-like paleness; the pulse scarcely perceptible; the hands and feet cold; the voice almost gone. On examination I ascertained

that the uterus was relaxed, and that the woman, so to speak, floated in blood. As the ordinary means for stopping hemorrhage were insufficient in this case, I determined to try compression of the aorta, and accordingly introduced the entire right hand into the uterus, and with the four fingers gathered into a conical shape made forcible pressure on the vessel immediately above its bifurcation. The bleeding ceased completely. At the same time I stimulated the walls of the uterus by moving my thumb, and rubbed the corresponding part of the abdomen with the left hand. During the continuance of the compression anæsthetics with tincture of opium and cinnamon were administered, and as soon as the patient was somewhat restored, secale cornutum in fifteen grain doses every half hour. Cold poultices were also applied to the abdomen and subsequently sprinkled with æther. All this, however, produced no contraction of the uterus, and the moment I ceased to press on the aorta, the bleeding burst out afresh. After having kept up the compression for nearly half an hour, my hand and arm were completely disabled, and I was unable to press with sufficient force. A change of hands would have caused too great a loss of blood; I therefore determined to lay a heavy sand-bag, as recommended by Kluge and Betschler, on the part of the abdomen corresponding to the uterus—a plan of which I had previously ascertained the utility. This was done, while I gradually withdrew my hand; the moment the bag was well placed all the bleeding ceased, which had returned after the removal of my hand. In two hours after, the skin had recovered its warmth, and every bad symptom disappeared: the bag was then taken away, having been gradually lightened by removal of its contents. Six weeks after the patient was perfectly well with the exception of weakness; she suckled her infant herself.

[External compression with the hand on the abdomen, recommended by others, and the only way of acting on the aorta when an irregularly contracted state of the uterus may prevent introduction of the hand, was first tried in this case; but from the thickness of the abdominal parietes it had no control over the bleeding.]

Medicinische Zeitung. No. xxxvii. 1839.

On Triismus in New-born Infants. By Dr. C. E. LEVY, Resident Physician at the Foundling Hospital in Copenhagen.

DR. LEVY refers this disease to inflammation of the umbilical arteries, and relates six cases in confirmation of this opinion which had previously been expressed by Professor Busch, of Berlin. The cases exhibit the remarkable rapidity with which this inflammatory process passes into the suppurative stage and occasions destructive ulceration of the coats of the arteries. The following are the principal facts of Dr. Levy's cases:

Case	Cord separated	Illness began	Death	Post-mortem Examination.
1	4th day	6th day	7th day	Suppuration of the arteries with loosening and discoloration of their lining membrane.
2	5	6	7	Extensive ulcerative destruction of the coats of the arteries.
3	4	3	8	Destructive suppuration with perforation of the right umbilical artery.
4	5	5	7	Suppuration with discoloration, and partial destruction of the lining membrane of the arteries.
5	5	5	6	Suppuration, with discoloration and loosening of the lining membrane of the arteries.
6	3	3	5	Destructive suppuration, with softening and perforation of the walls of the arteries.

The diseased condition of the umbilical arteries did not in any case extend up to the point where they unite with the hypogastric arteries.

Neue Zeitschrift für Geburtskunde. Band vii.

II. THE AMERICAN AND COLONIAL JOURNALS.

PATHOLOGY, PRACTICAL MEDICINE, AND THERAPEUTICS.

Case of Idiocy from a Blow on the Head. By S. ANNAN, M.D., Physician to the Baltimore Almshouse Hospital.

E. R., ætat. twenty-five years, admitted May 16th, died August 1st, 1839. This girl was a prostitute; and on Christmas, 1836, was struck on the right parietal bone with a stick by one of her paramours, by which she was knocked down and rendered insensible. She remained in a state of stupor during several hours. For some days she was unable to leave her bed, and she never afterwards had perfect command of her limbs; neither was she able to articulate distinctly, and her intellect was so much impaired that she was regarded as idiotic. When admitted into the Almshouse she could walk a few steps with a tottering gait, but was liable to fall forwards, unless she could catch hold of something wherewith to support herself. On attempting to grasp anything, the motions of the hands and arms were irregular, showing that the muscles were not completely under the command of the will. The motions somewhat resembled those of a person affected with chorea. She appeared to be completely idiotic, and was as easily managed as a child. When she attempted to speak, although with a little attention a number of words could be distinguished, no coherent sentence could be made out. She was frequently seized with what appeared to be a chill. She became paler; the extremities cold; and she whined and wept, and was restless and uneasy for two or three hours. No marked hot stage, however, succeeded. During several weeks before her death, the muscles about the mouth were in a state of constant motion, except when she was asleep. She was attacked with dysentery, which was succeeded by diarrhœa, of which she died.

Post-mortem examination twelve hours after death. Brain alone examined. Neither the scalp nor the skull showed any trace of a blow having been inflicted. The arachnoid membrane and pia mater, over the entire surface of both hemispheres of the cerebrum, especially on the upper and lateral parts of the anterior and middle lobes, adhered so firmly to the convolutions, that it was with considerable difficulty they could be stripped off. Over the posterior lobes and base of the cerebrum, the adhesion was not so strong. From the anterior and middle lobes the cineritious matter, in a softened state, came off, adhering to the membranes. The arachnoid was considerably thickened and was opaque. The thickening and opacity were greatest over the superior parts of the middle lobes. The medullary centre of the cerebrum showed a greater number of red points than is natural, and the superficial veins of the ventricles were distended. Three or four ounces of serum were found in the sac of the arachnoid and in the ventricles, and there was a small quantity under the pia mater.

REMARKS. This case would appear to countenance the theory of Foville and Pinel Grandchamp, viz., that the cortical substance is the seat of intelligence. The blow upon the head brought on inflammation of the arachnoid, pia mater, and cortical substance. Extensive adhesions were formed between the membranes and the surface of the convolutions; and softening of the cortical matter took place. There was extensive disorganization of the surface of the cerebrum, while the medullary matter was comparatively uninjured. The mind was a complete wreck; but motion, until she became greatly debilitated, was not very much impaired.

American Journal of Med. Sciences. No. xlix. Nov. 1839.

Remarks on the Black Vomit of Yellow Fever. By F. M. ROBERTSON, M.D.,
of Augusta, Georgia.

A most destructive epidemic has prevailed in our city since the early part of August. Various opinions were at first entertained as to the nature of the disorder. The symptoms, course, and termination of the disease, in connexion with the post-mortem appearances, leave no doubt as to its being, unequivocally, "yellow fever," or what is styled in Charleston, S. C., "*strangers' fever*." Some, who still contend that it is not yellow fever, assert that the black matter thrown from the stomach during the life of the patient, and found in it after death, is nothing more than black bile, mixed with the secretions of the stomach, the ordinary production of autumnal bilious fevers.

The late Dr. Physick, I think, was among the first to point out the remarkable difference between the matter of black vomit and the black bile. I repeated his experiments at a post-mortem examination to-day. The subject of the examination had laboured under the usual symptoms of yellow fever, and expired throwing up large quantities of "black vomit." Upon exposing the cavity of the abdomen, the cardiac and pyloric extremities of the stomach were carefully tied, so that nothing could escape from or enter into that viscus: the gall-bladder was secured in the same manner, and both removed from the body. The stomach contained about a pint of black vomit, answering, in every particular, to the description given by different writers upon the subject. The gall-bladder, which was of the natural size, was two thirds full of deep black bile, of nearly the consistence of tar.

I first spread the bile upon a white sheet of paper; it presented the usual dark green tinge, slightly inclining to yellow. The black vomit from the stomach was also treated in the same manner; the colour and appearance were totally different from that of the black bile. The fluid part of the black vomit resembled dirty coffee, while a thick dark sediment, resembling the coffee grounds, was deposited on the paper.

Some of the black bile was next placed in a vessel containing clear water; it was completely soluble, communicating its peculiar colour to the water. The black vomit was next placed in a similar quantity of pure water. After the most violent agitation, the dark flocculi would sink to the bottom of the vessel, no portion being dissolved, and the water returning to its natural appearance. One other test was made; this experiment was tried, as we are informed, by Dr. S. Cooper; I am not at present aware of any other authentic instance. Knowing that the intense bitterness of the bile would be communicated to any substance, however slightly it might be impregnated with it, I resolved to try the different impressions that would be made upon the organs of taste by the two substances. I first tasted the black bile, which was intensely bitter. After washing the mouth thoroughly from the impression produced by the bile, I then tasted the black vomit taken from the stomach. This communicated a slightly sour or subacid taste; with this exception it was entirely insipid—not the slightest traces of bile were discoverable from the taste. This test was repeated by Dr. A. G. Howard, of Charleston, S. C., who assisted in the post-mortem examination, and the same characters were recognized by him.

American Medical Examiner. Oct. 19, 1839.

On the Use of Quinine in Yellow Fever. By the Editors of the Philadelphia Medical Examiner.

Much attention has been directed at New Orleans to the treatment of yellow fever by very large doses of the sulphate of quinine, given at the period of collapse, immediately at the commencement of the disease. This practice, which consists in giving large doses of quinine, say from a scruple to a drachm, has been resorted to, we believe, for two or three years past, with great advantage, to the diminution of the mortality of this disease, which, under ordinary methods of treatment, is singularly fatal.

We do not know at what exact date or at whose suggestion this practice was instituted. Most probably, like other modes of treatment, the idea has often been suggested and successfully acted upon; but it is not long, at least, that the practice has been generally adopted, or that its success has been established upon tolerably certain grounds. In all cases of this kind we are much more inclined to give the credit of a successful mode of treatment, or of the investigation of an obscure pathological problem, to those who first introduce it to the profession, by setting forth the testimony on which it rests in a clear unquestionable light, than to the physician who may have simply conceived the possibility of the connexion, but has let it remain in a useless and impracticable form.

The evidence respecting this new mode of treatment, to which we perceive an allusion in one of the late meetings of the Academy of Medicine of Paris, must be very complete to carry with it entire conviction. It is so easy to mistake the success of practice in epidemics, like yellow fever, which vary every year, and change their character sometimes in the course of a few weeks, that we should not entirely admit that any plan of treatment would be uniformly successful, until it had been tested by the epidemics of several successive years. Still, the experience of a single physician in a single year would furnish just grounds for adopting and testing a practice which may have been unusually successful in his hands, and may promise still better results when tried upon a larger scale.

We have thrown out these remarks more with the hope of eliciting some more definite information from our New Orleans correspondents than we now possess than from any present knowledge we have respecting a mode of practice which, at least, promises more than any hitherto employed.

To put our readers in possession of what facts have come to light on this subject, we extract the following notice from a New Orleans paper:

"The Use of Quinine in Yellow Fever.—The Lafayette Gazette mentions the salutary effect in cases of yellow fever, derived from the exhibition of the sulphate of quinine, in very large doses. Several facts coming under our immediate knowledge enable us to corroborate this statement, and to add that we believe the "quinine treatment," as it is termed, to be a most important and incalculably beneficial discovery.

"The manner of employing the quinine in fever cases, which has been followed by such astonishing success, differs altogether from the mode in which that remedy is usually administered. The common practice of physicians has been to give it in small doses during the periods of remission. The new practice is based upon a different theory, and varies essentially from the old. When quinine is taken in large quantities, medical men have observed that it produces but a slight and inconsiderable stimulating effect, which is succeeded within a few hours by a powerful sedative impression, that is generally durable. With this view the medicine is exhibited in one very large dose, of from twenty to sixty or eighty grains, in the very incipency of the fever, while the morbid action appears to be in process of formation—that is, within six or eight hours immediately after the appearance of the earliest symptoms. It is all important, if we rightly understand the theory of its use, that the quinine should be employed before local irritation or congestion has taken place, or, in other words, while the malady is confined to the nervous system, and the organization is as yet unimpaired. When taken under such circumstances, its first effects are a very slight increase of the febrile symptoms; the pulse perhaps becomes quickened, the respiration more hurried, and the usual consequences of stimuli are present. This condition is, however, but transient, and is promptly followed by corresponding depression. All the more violent symptoms subside; the temperature of the surface is lowered; pain diminished; the pulse is gentle and subdued; the skin is covered with a healthy moisture: in short the chain of morbid associations becomes broken—sleep is superinduced, from which the patient awakes refreshed, and substantially better; and within twenty-four or thirty-six hours is considered in a state of convalescence. The treatment is, of course, not exclusively confined to the employment of quinine, though this is the chief reme-

dial agent. The usual means of obviating tendencies to local irritation must be resorted to. The skilful practitioner will modify his curative measures according to the necessities of the case; cupping, leeching, the warm bath, and local applications, may be used as circumstances call for their employment. The quinine is administered in a single dose; the object of the physician is to bring about the sedative influence of the remedy, before any of the organs, as the head, stomach, &c., become specially affected by the disease. If it should fail to produce the anticipated effect, the case is too far advanced for a second trial, and it must be treated on general pathological principles. Let it, however, be remembered that in thirty or forty cases which have been subjected to this novel curative method, not one has terminated fatally. The action of the quinine has been uniformly most salutary, operating like a charm, and dissipating the symptoms of the malady ere they become concentrated on particular organs.

"We have been an eye-witness of the excellent effects of the quinine treatment in several instances, and can with justice render a tribute to the zeal and talent displayed by some of the members of the profession in the employment of this remedy. We are not aware to whom the merit of the discovery belongs. Those physicians who have paid particular attention to its *modus operandi*, and have employed it in the largest number of cases, are Drs. Hunt, Beattie, Farrell, and Mackay. These gentlemen concur in their views of the theory upon which the treatment is based, as well as in the unexceptionably advantageous results which accrue from its application."

American Medical Examiner. Oct. 19, 1839.

Observations on the Employment of Cimicifuga in the Treatment of Chorea.

By T. S. KIRKBRIDE, M.D.

THE *Cimicifuga** is well known in many parts of this country under the common name of "black-snake root," and although used for many years in domestic practice, was first brought before the profession as a remedy of value in the treatment of chorea, by Dr. Young, of Chester County, Pennsylvania, in a paper published in the 9th volume of this Journal.

The first two cases that came under our notice, after the publication of Dr. Young's paper, occurred during our residence in the Pennsylvania hospital. One was a lad about ten years of age, and the other a girl of thirteen. In both patients the symptoms were well marked and of some standing. After coming under our care, the treatment consisted of free purging for a few days preparatory to the use of the powdered root of the *cimicifuga*, in the dose of a teaspoonful three times a day, and frictions over the surface of the body generally. No other remedy was employed, and the improvement which commenced almost with the use of the root, continued till the perfection of the cure, which was in about four weeks in both instances.

The next case we had an opportunity of treating was in private practice, during the summer of 1835. The patient, a delicate girl, ten years of age, had decided symptoms of chorea, but of short duration. After free purging she took a wine-glassful of a decoction of *cimicifuga* three times a day, and gradually increased the dose. This decoction was made by boiling one ounce of the root in a pint of water for twenty minutes. Her symptoms abated promptly and the cure was complete.

In only one of the cases just noted were the functions of the mind much disordered; but in our fourth case, which follows, the mental affection was one of the most distressing symptoms. The patient was reported to be a highly intelligent girl, nine years old; but when she first came under our care in April, 1836, the expression of her countenance was that of confirmed fatuity, and her actions and conversation were such as might have been expected from

* *Cimicifuga racemosa*, NUTTALL, TORREY. *Cim. Serpentina*, PURSH. *Aclea racemosa*, WILLDENOW. *Macrotys racemosa*, EATON's Manual. *Vide* United States Dispensatory, by WOOD and BACHE.

her physiognomy. She walked with great difficulty, and appeared to have lost nearly all power over both her left extremities. She had irregularity of the bowels, headach, and often complained of pain shooting down the left arm. In this case, the symptoms had been gradually coming on for six months before we were consulted, but owing to domestic misfortunes, her widowed mother was able to give her much less attention than she deserved. Cups [cupping-glasses] were applied to the back of the head and neck, once; stimulating pedilavia were prescribed, and frictions with salt over the surface of the body. After being moderately purged, every day for a week, she commenced with the *cinicifaga* in decoction, rapidly increasing the dose. An improvement was evident from the first few days' use of this last remedy; her motions became less violent; control over her left side was gradually regained; the functions of the mind improved with her other symptoms, and at the end of four weeks from our first visit, to the astonishment of her friends and, we may add, to our own, she was entirely well.

By permission of our friend, Dr. Otto, we are allowed to refer to a very intractable case, which occurred in his own practice soon after the publication of Dr. Young's paper. A young lady of sixteen was reduced to an extreme state of prostration by the violence and constancy of her motions, which scarce allowed her to sleep at all during weeks; she had become completely idiotic, and a fatal termination was looked for. All the usual remedies had been employed, without advantage, when Dr. Otto directed the powdered black-snake root, as something still untried; and to his surprise an amendment took place, which resulted in a restoration to perfect health. The cure is attributed by her experienced and talented attendant entirely to the remedy last employed.

Another case, possessing much interest, occurred in the Pennsylvania hospital, in April, 1836, under the care of Professor Wood, then attending physician. This patient was a boy about seventeen years of age, from near Dyott's glass-works, suffering with a violent attack of chorea, and who, Dr. Wood informs us, was entirely cured by the remedy particularly under notice.

American Journal of Med. Sciences, No. 50. Feb. 1840.

Smallpox in the Camel. By J. W. WINCHESTER, M.D., of Jatta (India).

THE following facts connected with smallpox, and communicated to me by M. Masson, a gentleman well known for his very persevering, and highly successful antiquarian researches in central and upper Asia, will, I am sure, be interesting.

In the province of Lus, along the seacoast of Baloochistan, south-west of Karachi, of which Bhala is the capital and Somneanee the port, the milkers of camels affirm that they have a disease called "Photo Shootur." Smallpox in Lus is designated "Photo," so that the term "Photo Shootur" implies the smallpox of the camel, which is an eruption on the udder of that animal not more violent and in its pustule similar to that on the udder of the cow. The camels, while thus afflicted, continue to give milk, which is largely drank by the inhabitants, but both the men and the women who milk them are invariably seized with a pustular disease similar to that on the camel's udder, on their hands and arms, never extending above the elbows. No one has ever been known to die from this eruption, and the natives themselves remark, that those who have had the "Photo Shootur," are uniformly exempt from smallpox, which is a disease occasionally endemic in the district.

Although the inhabitants are aware that the "Photo Shootur" is a preventive against smallpox, they do not inoculate with its virus, in a manner similar to what they do from the smallpox pustule, which frequently brings on a disease, believed by these people to be beyond the power of the native doctors, in so much so, that the relatives of the sick proceed to the shrine of some favorite saint, there by propitiatory offerings to invoke aid in favour of the diseased.

Indian Journal of Med. Science. Oct. 1, 1839.

SURGERY.

Operation for Remedying an Anchylosis of the Hip-joint. By Dr. J. KEARNEY.

"James Hall, an Irish labourer, aged 47 years, of healthy constitution, in October, 1829, suffered a severe injury by being caught between a vessel and the wharf. By this accident, the left thigh was fractured about its middle, and the right hip-joint severely contused. For the treatment of those injuries he was placed on his back, Boyer's apparatus applied to the left thigh, and the right thigh flexed, rotated outwards and abducted. The apparatus being badly adjusted, sloughing took place in the left groin, and all dressings were removed. No extension was kept up from this time, and the os femoris united two inches shorter than the right. The inflammation of the hip-joint proved very severe, and terminated in complete bony anchylosis.

"He was admitted under my care into the New York Hospital, November 10th, 1830. At this time, he could indeed walk, but with a painful effort, and the knees, in the act of progression, were separated two feet and a half. He was unable to support his family, and was desirous of having the deformity remedied. His general health was good. In consultation with my colleagues, Drs. Mott, Stevens, and Cheesman, I proposed to cut down on the os femoris, saw it off immediately above the less trochanter, and as this limb was two inches longer than the other, to remove as much as possible of the bone between the trochanter and the head, so as to make the two limbs, as nearly as I could, of the same length. This plan was assented to; and on the 24th of November, 1830, at 12 o'clock, the operation was performed in the following manner: An incision was made, six inches in length, in the course of the os femoris, beginning about an inch above the trochanter major. This was met about its middle by another from the front, three inches in length. The flaps were turned off, and the soft parts easily detached from the bone, so that in a short time, and with much less difficulty than I anticipated, my fingers were passed round the bone immediately above the trochanter minor. The division of the bone was attempted by the chain saw, but the instrument breaking, the section was completed with a saw recommended by Dr. Barton (*North Am. Med. and Surg. Journ.* for 1827, p. 292). This being accomplished, the limb was readily placed parallel with its fellow. Another section was made, and a wedge-shaped portion removed, the thickness of which at the outer part was about half an inch, and at the less trochanter three quarters of an inch. The removing a portion of bone of this shape I thought would enable me to keep the limb which had been greatly abducted more readily in situ. The wound was dressed with adhesive plaster and lint, and a bandage applied. The patient was now removed to his ward and placed on a firm mattress. The limb was kept in a proper position by a bandage to the feet.

"About the 1st of March the wound healed, and he was supported on crutches. He remained in the hospital until the beginning of May, 1831, when he left it of his own accord.

"May, 1833. My patient paid me a visit, walking well, and assisted only by a cane. He assured me that he could walk well enough if the left thigh gave him as little inconvenience as the one on which I had operated. But the left knee was somewhat stiff, as was the thigh, in consequence of the scars produced by the sloughs in the groin. He can rotate the right limb inward and outward; abduct it and flex it nearly to a right angle."

Amer. Journ. of Med. Sciences. No. 50. Feb. 1840.

Case of Vesico-vaginal Fistula, successfully treated by an Operation. By GEORGE HAYWARD, M.D., Surgeon to the Massachusetts General Hospital.

A married lady, ætat. 34, and of good health, consulted me on account of a vesico-vaginal fistula. Fifteen years ago, she was delivered, by means of

instruments of her first child, which was dead, after having been in labour three days, during all of which time she passed no water. About ten days after her delivery an opening formed between the bladder and vagina, and since that period she has lost the retentive power of the bladder, and all the urine has escaped through the opening, except when a catheter has been introduced. Occasionally when in a horizontal posture there would be no escape of urine for two or three hours, though usually there was a continuous flow, but when in an erect position it was constantly dribbling, causing great inconvenience and distress. She had been eleven times pregnant since the accident, but had never gone her full period since the birth of her first child. It is not improbable that the fistula might have had some influence in the production of these repeated abortions. The only attempt that had been made to relieve her, consisted in the introduction of a catheter, which she wore for a considerable length of time, and touching the edges of the opening with caustic. Neither of these means afforded any relief; of late nothing had been done, and she regarded her case as almost hopeless. Upon examination, I found the fistula situated from an inch and a quarter to an inch and a third behind the urethra, a little on the left side. It was not large, barely sufficient to admit the end of my forefinger, and surrounded by a hardened edge, nearly of the consistence of cartilage. There was some degree of morbid sensibility in the lining membrane of the vagina, so that an examination was quite painful.

Operation. The patient was placed on the edge of a table, in the same position as in the operation for lithotomy. The parts being well dilated, I introduced a large bougie into the urethra and carried it back as far as the fistula. In this way I was able to bring the bladder downwards and forwards, so that the opening was brought fairly into view. The bougie being then taken by an assistant, I made a rapid incision with a scalpel around the fistula about a line from its edges, and then removed the whole circumference of the orifice. As soon as the bleeding, which was slight had ceased, I dissected up the membrane of the vagina from the bladder all around the opening, to the extent of about three lines. This was done partly with the view of increasing the chance of union, by presenting a larger surface, and partly to prevent the necessity of carrying the needles through the bladder. I then introduced a needle, about a third of an inch from the edge of the wound, through the membrane of the vagina and the cellular membrane beneath and brought it out at the opposite side at about an equal distance. Before the needle was drawn through, a second and a third were introduced in the same way; and there being found sufficient to close the orifice, they were carried through, and the threads tightly tied. Each thread was left about three inches in length. I should have remarked that I found no difficulty in introducing the needles by the hand, the fistulous opening having been brought so low down and so fairly in view. A short silver catheter constructed for the purpose was then introduced into the bladder, and the patient was conveyed to the bed and laid on her right side to prevent any urine from coming in contact with the wound. I found her in the evening, eight hours after the operation, quite comfortable. She had had some smarting for two or three hours, but this was soon gone; she complained a little of the catheter; all the water flowed through it and was received upon cloths. She was directed to live on thin arrow-root, milk and water, and a solution of gum arabic.

At the end of seventeen days from the operation I examined her again; the wound was entirely healed and apparently firm, and the soreness nearly gone. I advised her to introduce the catheter two or three times a day for some weeks; and on the following day she returned home by water, a distance of nearly two hundred miles.

Treatment of Ulcers in India. By E. J. DOWNES, Esq.

My attention was first drawn to this subject whilst stationed at Allahabad in 1833, where I had numerous opportunities of witnessing cases of the deep and excavated ulcer, such as the bubo which has burrowed deeply, indolent ulcers of the legs, with ragged edges and irregular surfaces, &c.; and from the great difficulty frequently experienced in producing granulations, I was led to the adoption of a plan recommended by Mr. Stafford, which answered most completely, when various other remedies had failed. The treatment consists in pouring into the excavation melted wax of an adhesive quality, and just at that temperature when it is on the point of cooling (so as to avoid burning the patient), and this may be known by a portion of it clinging to the sides of the vessel, its beginning to thicken, and having somewhat of an opaque appearance. Mr. Stafford recommends four parts of white wax with one part of Venice turpentine, but I found a small quantity of spirits of turpentine answer every purpose. As soon as the wax has become solid in the ulcer, two or three strips of adhesive plaister, according to the extent of surface may be applied over it, so as to retain the wax in its situation; on the third day the dressing may be renewed. I was perfectly astonished at the rapidity with which healthy granulations were formed under these circumstances.

During my residence at Neemuch, in 1835, I was asked to prescribe for a valuable elephant belonging to Colonel Spiers; he told me that his elephant had a sore on her back, which had existed for eight months, rendering the animal perfectly useless, although, as the Colonel remarked, the Mahout tried all kinds of applications which he could think of to heal it up, as well as what he could get others of his tribe to prescribe for it, for a period of eight months. On examination I found an excoriated ulcer situated close behind the top of the animal's left shoulder extending backwards: the extent of the ulcer was five inches in length, two inches in breadth, to one and a half inch in depth, there was a sloughy appearance with a thin offensive discharge. I recommended a poultice for the first day, and recollecting the good results produced by the treatment I had previously adopted in similar cases of ulcers, I decided to try the wax in this instance. The dressing was removed after three days, and the alteration that had taken place in the appearance of the ulcer was really astonishing; fine healthy granulations were produced, and in the course of a month it completely healed.

Indian Journal of Med. Science. July, 1839.

Removal of the Upper Jaw with a large portion of the Malar Bone.
By Professor JOHN WARREN, of Boston.

THIS patient was a gentleman about sixty years of age, who for some time had been affected with fungus of the antrum, of a dreadfully painful kind, which must soon have proved fatal. The tumour was of a sugar-loaf form, occupying the right side of the face, and had forced its way through the cavities pertaining to the maxillary bone. The right eye was compressed and inflamed, and the cavities of the nostril partly filled by the tumour. Of course the support of the right eye and the right side of the right nostril and palate bones was removed, thus opening the nostril, mouth, and orbit into one common cavity. The patient supported this trying operation without a groan. He rose from the chair at the conclusion, and undressed himself before retiring to bed. The wound was closed by the twisted suture, and united by the first intention. In a fortnight he was well enough to leave the chamber and amuse himself with a spy-glass, using the organ which had been partly dissected from its socket in the operation he so lately passed through. The operation took place on the 17th of September, and on the 9th of October the delighted patient, thus almost miraculously saved from a horrible death, was able to leave the house.—*Boston Med. and Surg. Journal.* Oct. 16, 1839.

Amer. Journ. of Med. Sciences. No. 49. Nov. 1839.

III. THE BRITISH JOURNALS.

(FOR THE QUARTER ENDING MAY 31, 1840.)

[OWING to the extent of our other materials this quarter, we are forced to content ourselves with little more than the titles of some of the more valuable papers.—ED.]

EDINBURGH MEDICAL AND SURGICAL JOURNAL. APRIL, 1840. No. 143.

Historical Notices, designed to illustrate the question whether Typhus ought to be classed among the Exanthematous Fevers. By CHARLES WEST, M.D., Graduate of the University of Berlin.

THIS is a sensible and well-written paper, "the aim of which is to disprove the claim of typhus fever to a place among the true eruptive fevers." The conclusions to which the author has arrived are, perhaps, the more worthy of attention that he began his investigations with a strong prepossession in favour of the opposite view. The following are the chief facts on which he grounds his opinions: 1st. The disease often occurs more than once during the lifetime of an individual. 2d. The eruption is not invariably present. 3d. The eruption does not always present the same character, nor does it always run a regular course, observing definite periods of increase, acme, and decline. 4th. The type of the fever itself varies, being sometimes intermittent, sometimes continued, changing from the one to the other form, and being occasionally converted into other diseases.

Practical Observations on the Diseases of Peru, described as they occur on the Coast and in the Sierra. By ARCHIBALD SMITH, M.D.

A valuable contribution to topographical medicine.

Remarks on Collapse occurring during the treatment of Acute Pneumonic Diseases. By WILLIAM KERR, Surgeon, Paisley.

THE perusal of these cases will benefit inexperienced practitioners. They are candidly related.

An Account of the Rötheln of German Authors, together with a few Observations on the Disease as it has been seen to prevail in Leith and its neighbourhood. By ROBERT PATERSON, M.D. &c., Physician to the Leith Dispensary.

THIS affection has generally been confounded with measles, sometimes with scarlatina. Dr. Paterson considers it intermediate between the two. This disease is characterized by an eruption of crimson stigmata, rapidly running together into patches of an irregular shape, with obtuse angles, varying much in size (from that of a pea to a crown-piece) according to the severity of the case, being smaller in mild and larger in severer cases; continuing for six or ten days, and terminating in furfuraceous scales; preceded by and accompanied with fever; watery discharges from eyes and nose; sneezing, and sore throat.

DUBLIN JOURNAL. MARCH—MAY, 1840. Nos. 49, 50.

A further Reply to Mr. H. Carmichael's Views on the Position of the Placenta, &c., in which is given a Statistical Table of its Situation in 100 Cases, as determined by the Stethoscope and the Measurements of the Membranes. By RICHARD DOHERTY, M.D.

WE much regret that we cannot transfer to our pages the important table

given in this valuable paper, which besides exhibiting on a large scale the actual position of the placenta, places in a striking light the value of obstetric auscultation. The table proves that out of these 100 cases, in twenty-five the placenta was attached to the anterior wall; in eight to the right side, below the Fallopian tubes; in ten to the left side, below the tubes; in three to the fundus; in fifty-four to the posterior wall; and of these only twenty-seven came "within two inches of the lowest part of the cyst." It proves also what has been doubted by some writers, that the stethoscope is capable of pointing out the exact situation of the placenta, a point which may be of service, if we afterwards are obliged artificially to remove it. A knowledge of its position will direct us which hand to employ, and enable us to pass it without hesitation in the proper direction, separating the membranes from the uterus as we proceed, and thus obviating the embarrassment they often afford while detaching a morbidly adherent placenta. No. 49. *March*.

Practical Observations on Peculiar Affections of the Throat, arising from Abscess between the Pharynx and Spine, and occurring in Children and Adults, exemplified by Cases. By CHRISTOPHER FLEMING, M.D., Member of the Royal College of Surgeons, Ireland.

THIS is a valuable communication, and well merits the attention of physicians as well as surgeons, as the affection therein noticed may be very readily overlooked, and probably often is so to the loss of life. *Ibid*.

On Retroversion of the Uterus, and a new Method of treating that Affection.
By CHARLES HALPIN, Esq. of Cavan, L.R.C.S. in Ireland.

THIS paper is worth consulting. The "new method" consists in the introduction of an empty bladder, and then inflating it, so as to produce thereby "a steady, equal, well-directed pressure" on the retroverted uterus, and thereby restoring it to its proper position. *Ibid*.

Appendix to Dr. Graves's Report on the Progress of Cholera, including the Tables from the Official Report of the Commissioners appointed to report the Progress of Cholera in Great Britain.

THESE tables are taken from the official report presented by the Commissioners to William IV., of which report but one copy existed; that copy was mislaid, and would have been lost to the world, had not Sir James Clark exerted himself to search it out, and by the aid of the Royal Librarian it was at last found buried amongst an heterogeneous mass of papers in a drawer.

These tables are valuable in the highest degree, and can never be overlooked in any future history of cholera. The commissioners performed their duty with a diligence and accuracy which stand unrivalled, and their labours have succeeded in furnishing a more valuable and accurate history of the march and effects of cholera than any other country can boast. By the aid of these tables, any person can construct a map of the progress of cholera in Great Britain, which will at once exhibit its route and intensity. *Ibid*.

Observations on Plastic Bronchitis, or Bronchial Polypi.
By ROBERT CANE, M.D. M.R.C.S.L., Kilkenny.

Two well-marked cases of this affection, and both terminating favorably under the bold use of mercury. The treatment deserves attention. *Ibid*.

Disease of the Brain dependent on Disease of the Heart. By ROBERT LAW, M.D., Physician in Ordinary to Sir Patrick Dun's Hospital, &c. &c.

THIS paper deserves notice. The author justly considers that to limit the pe-

thological relation existing between these two important organs to apoplexy, the result of hypertrophy of the left ventricle of the heart, is to narrow it much within its true limits. He takes the same view as Dr. Carawell of softening of the brain, viz. that it is a species of gangrene consequent upon a diminution of a due supply of blood; but he considers that this diminution may depend on disease of the heart as well as of the cerebral vessels, as, for instance, on disease of the aortic or mitral valve. No. 50. *May*.

Observations on Empyema. By GEORGE GREENE, M.D., Lecturer on the Practice of Medicine in the Richmond Hospital School, Dublin.

THESE observations are deserving attention. They contain some new facts respecting the expectoration in empyema, which have an important bearing on the diagnosis both of empyema and phthisis, and on the propriety of the surgical operation in the former. *Ibid*.

Smallpox Pustule in the Bladder.

DR. GREENE presented a remarkable specimen of smallpox on the mucous membrane of the bladder. The patient, a young man, died of smallpox. While convalescent from fever, he caught infection from another person in the same room, and had the disease in the confluent form. He died on the fifth day after the appearance of the eruption, and shortly before his death was attacked with severe diarrhoea. There were no pustules in the respiratory passages or intestinal tube. *Ibid*.

LANCET. MARCH—MAY, 1840.

Treatment of Disease of the Hip-joint by Salivation with Mercury.

By JAMES O'BEIRNE, M.D. Surgeon Extraordinary to the Queen.

DR. O'BEIRNE has been in the habit for some years of treating morbus coxæ most successfully by rapidly mercurializing the system by means of calomel and opium. In addition to this means he confines the patient to the horizontal position and gives sarsaparilla. He avoids purgatives and leeches, and all kinds of counter-irritation until pytalism is established. This practice is a great improvement in our therapeutics. *March 7*.

On the Hydrated Sesquioxide of Iron as an Antidote to Arsenic.

By DONALD MACKENZIE, M.D.

FROM seven experiments on dogs here related, Dr. Mackenzie concludes that the hydrated sesquioxide of iron should be resorted to in all cases where arsenic has been swallowed, as it is a chemical antidote of great avail in poisoning by that substance. *April 4*.

On a New Mode of Treating Incontinence of Urine during Sleep.

By E. W. DUFFIN, Esq., Surgeon, London.

THIS consists in the application of lunar caustic to the orifice of the urethra, so as to excite acute inflammation of the part; a case is given of its utility. "When the urine passed over the irritated surface the pain it produced was sufficient to awaken the patient, and arouse the sphincter vesicæ to the performance of its office." The caustic was repeated and a cure shortly effected. *April 11*.

Cure for Corns. By JAMES HENDERSON, Surgeon.

Tincture of Iodine, 3iv.;

Ioduret of Iron, xij. gr.;

Chloride of Antimony, 3iv.;

To be applied by means of a camel hair brush, after the corn has been well pared. Three applications have generally been found sufficient. *April 8*.

Cases illustrating the efficacy of Dividing the Internal Rectus Muscle for the Cure of Squinting. By P. BENNETT LUCAS, Esq.

MR. LUCAS has performed this operation in five cases with perfect success, and, we believe, he was the first to perform it in England. Mr. Lucas has somewhat simplified Dieffenbach's method, employing only one hook in place of four. *May 2.*

Cure of Squinting. By MR. LISTON.

MR. LISTON has also performed this operation several times and with the usual success; his method is the following:

"The lower eyelid is everted, and with a pair of spring artery forceps a small portion of the conjunctiva is seized; the forceps are then allowed to hang down, and the eyelid is thus held completely open; the upper eyelid is held up with the common speculum; a small double hook is placed in the conjunctiva, internally to the cornea, and the eye is pulled outwards; the conjunctiva being snipped across with scissors, and the sclerotic exposed, another hook is placed in this membrane, and the eye more forcibly everted. With a little dissection the muscle is seen just as it ends in its tendon, and with a pair of scissors it is cut across close to its insertion into the sclerotic; the operation does not occupy half a minute when the patient is quiet, and one assistant only is required." *May 23.*

LONDON MEDICAL GAZETTE. MARCH—MAY, 1840.

Observations on the Employment of the Active Principle of Elaterium in Medicine. By GOLDING BIRD, M.D. F.L.S., &c.

THIS is a valuable paper, showing that *elaterine* ought always to be preferred to the crude drug. "I have had," says Dr. Bird, "a sufficient amount of experience to justify my recommending this drug to the notice of my professional brethren as a valuable addition to our materia medica, not as a new or specific remedy, but simply as an hydragogue cathartic, producing little or no irritation; if properly administered, not liable to the annoying inconstancy of action which characterizes the crude elaterium, and not producing vomiting or griping, unless considerable functional gastric or hepatic derangement is present." *March 13.*

On the Frequency of the Pulse at Different Ages in Males and Females. By W. AUG. GUY, M.B., Cantab, Prof. of Forensic Medicine, King's Col., London.

A continuation of the author's valuable researches on this important subject.

Acetate of Lead in Bronchitis. By W. HENDERSON, M.D.

AFTER a careful investigation of the powers of this remedy, continued for several years, Dr. Henderson feels warranted in stating his conviction that the acetate of lead is a remedy by far the most worthy of reliance in bronchitis attended with profuse secretion. Its administration has been limited to that period of the bronchitis in which the evidences of abundant secretion were apparent; and those evidences have formed the only guides which he has found it requisite to follow in the first exhibition of the remedy, and in regulating the bulk and frequency of the doses. The dose has been, for children, gr. $\frac{1}{4}$, gr. ss, gr. j, eight or ten times a day, and from one to three grains for an adult, not exceeding in all twelve grains a day. *May 8.*

Account of Laura Bridgman, an American Girl, with only one Sense. By Dr. JULIUS, of Hamburg.

THIS is a very interesting narrative. The subject of it is a young girl, nine years of age. In addition to her deafness, dumbness, and blindness, her exclusion from the external world is so entire, that she is almost destitute of smell, and can only smell the most pungent things. And yet she is intelligent, and has made considerable progress in gaining information. *May 15.*

PART FOURTH.

Medical Intelligence.**TABLE OF MORTALITY FOR LONDON,**

FOR THE FIRST QUARTER OF 1840:

Showing the number of Deaths from all causes registered in twelve weeks, from the 5th January to the 28th March, 1840.

Causes of Death.	JANUARY.			FEBRUARY.					MARCH.				Total.
	Week ending 11th	18th	25th	1st	8th	15th	22d	29th	7th	14th	21st	28th	
CLASS I.													
Smallpox	8	3	8	12	5	6	9	4	9	8	13	12	97
Measles	18	20	10	17	16	13	12	11	15	19	14	15	180
Scarlatina	48	51	45	31	33	46	44	45	36	24	47	28	478
Whooping-cough	17	21	37	30	15	20	22	27	26	17	26	17	275
Croup	7	5	8	3	5	5	6	11	9	10	8	11	88
Thrush	7	4	3	8	4	9	6	5	8	2	3	2	61
Diarrhoea	4	5	6	6	6	6	3	5	3	6	5	0	55
Dysentery	0	1	2	2	1	2	2	1	0	1	0	2	14
Cholera	0	0	0	1	0	0	0	0	0	0	0	0	1
Infuenza	0	3	3	3	0	0	4	0	1	2	3	1	20
Typhus	25	27	30	26	31	30	20	21	26	26	29	15	308
Erysipelas	9	3	5	4	3	3	1	5	5	3	3	4	48
Syphilis	1	1	0	0	0	0	0	1	1	2	1	0	7
Hydrophobia	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Epidemic, &c.,	144	144	157	145	119	140	129	136	139	120	152	107	1632
CLASS II.													
Cephalitis	9	11	12	10	9	19	11	9	12	9	13	9	133
Hydrocephalus	36	36	31	38	26	26	31	42	45	35	33	33	415
Apoplexy	23	13	26	19	25	18	14	23	19	17	20	14	231
Paralysis	13	21	19	10	17	13	20	13	12	26	9	14	187
Convulsions	64	56	54	44	57	52	48	56	68	62	59	60	680
Epilepsy	3	3	3	3	7	3	11	5	9	5	3	3	58
Insanity	2	2	0	1	1	0	0	4	2	4	1	3	20
Delirium tremens	1	1	3	2	0	0	1	2	1	1	3	1	16
Diseases of the brain, &c.,	11	16	8	11	7	13	6	9	10	11	10	9	121
Total Dis. of Brain, &c.,	161	159	156	133	158	144	142	163	176	170	181	146	1861
CLASS III.													
Quinsy	1	2	1	2	0	2	0	0	5	2	1	0	16
Bronchitis	8	7	22	8	14	14	8	11	19	17	12	16	186
Pleurisy	2	1	0	2	4	1	0	2	2	0	1	3	18
Pneumonia	79	90	69	64	58	55	57	50	76	64	85	71	827
Hydrothorax	14	16	11	1	4	4	10	6	10	7	12	5	100
Asthma	45	66	54	45	29	35	39	39	42	51	41	35	524
Consumption	140	166	127	130	139	141	151	139	126	148	163	151	1740
Diseases of the lungs, &c.,	18	28	18	15	13	11	11	14	18	19	17	22	201
Total Dis. of Lungs, &c.,	307	373	308	276	261	263	276	270	311	308	328	308	3582
CLASS IV.													
Pericarditis	0	2	1	1	1	0	1	0	2	0	0	1	9
Aneurism	0	0	0	1	1	0	1	0	0	1	1	0	5
Diseases of the heart, &c.,	13	22	21	16	20	20	16	24	9	20	13	15	215
Total Dis. of Heart, &c.,	13	20	22	18	22	20	18	24	11	21	14	16	229

Causes of Death.	JANUARY.			FEBRUARY.					MARCH.				Total.
	Week ending			Week ending					Week ending				
	11th	18th	25th	1st	8th	15th	22d	29th	7th	14th	21st	28th	
CLASS V.													
Teething	17	18	16	11	12	18	13	16	20	8	9	14	173
Gastritis, enteritis	12	15	13	11	15	14	14	8	17	21	6	20	185
Peritonitis	1	0	1	0	0	4	1	1	3	3	0	3	17
Tabes mesenterica	4	3	2	5	0	3	7	3	6	4	9	5	51
Ascites	0	2	3	0	1	1	0	2	1	0	0	2	12
Ulceration	2	0	3	3	0	0	0	0	4	0	2	1	15
Hernia	3	2	3	0	2	0	3	1	2	2	4	2	24
Colic or ileus	5	0	1	1	2	2	2	1	1	4	1	2	23
Diseases of the stomach, &c.	10	5	6	8	5	6	11	1	3	6	5	3	66
Hepatitis	1	1	2	2	0	1	1	1	2	0	2	1	14
Jaundice	0	3	1	1	1	3	3	2	3	2	1	2	22
Disease of the liver, &c.	7	2	3	7	5	6	8	5	10	4	8	12	77
Total Dis. of Stomach, &c.	62	51	54	46	43	58	63	41	71	55	48	67	640
CLASS VI.													
Nephritis	0	0	0	2	1	0	0	0	0	0	0	0	3
Diabetes	0	0	1	1	0	0	0	0	0	0	1	0	3
Stone	0	0	2	1	1	3	0	1	2	0	0	0	10
Stricture	1	0	2	0	0	0	0	0	1	0	0	2	6
Diseases of the kidneys, &c.	4	3	2	2	4	3	2	4	3	3	4	4	38
Total Dis. of Kidneys, &c.	5	3	7	6	6	6	2	5	6	3	5	6	60
CLASS VII.													
Childbed	2	6	7	11	2	7	6	4	10	8	10	11	84
Ovarian dropsy	0	0	0	0	0	0	0	0	0	0	0	1	1
Diseases of uterus, &c.	3	1	2	2	1	1	1	3	1	1	3	2	21
Total Dis. of Uterus, &c.	5	7	9	13	3	8	7	7	11	9	13	14	106
CLASS VIII.													
Rheumatism	5	1	1	4	3	6	1	5	2	2	3	5	38
Diseases of joints, &c.	3	7	6	4	2	4	4	3	4	2	1	3	43
Total Dis. of Joints, &c.	8	8	7	8	5	10	5	8	6	4	4	8	81
CLASS IX.													
Ulcer	0	2	1	0	1	0	0	1	0	0	0	0	5
Fistula	0	0	1	0	1	0	0	0	0	0	0	0	2
Diseases of skin, &c.	1	0	2	0	2	0	0	0	0	1	3	1	10
Total Dis. of Skin, &c.	1	2	4	0	4	0	0	1	0	1	3	1	17
CLASS X.													
Inflammation	7	5	5	10	5	5	6	4	7	11	6	7	78
Hemorrhage	2	2	2	5	2	0	5	3	3	1	3	4	32
Dropsy	38	30	32	26	19	31	43	34	35	47	39	31	433
Abscess	3	2	2	2	5	4	3	7	3	6	8	4	48
Mortification	8	3	3	4	6	4	5	5	9	7	9	6	60
Scrofula	1	4	2	0	5	2	5	1	2	1	4	2	29
Carcinoma	12	4	9	6	12	9	6	9	5	6	3	7	88
Tumour	1	2	0	0	1	1	1	3	1	1	2	1	14
Gout	1	0	0	1	1	0	0	3	1	2	1	1	11
Atrophy	2	1	9	0	2	4	6	6	6	5	9	4	54
Debility	24	24	17	23	23	17	22	26	25	16	21	22	270
Malformations	1	0	0	0	4	0	0	0	0	1	2	0	8
Sudden death	13	17	15	22	14	13	17	18	17	11	14	13	184
Total Dis. of Uncertain Seat.	113	103	96	109	90	90	119	128	114	116	121	108	1319
CLASS XI.													
Old age or natural decay ..	105	91	76	61	78	54	65	56	84	75	71	22	937
CLASS XII.													
Intemperance	0	0	0	0	0	0	0	1	0	0	0	0	1
Privation	2	0	0	1	0	1	0	0	1	0	0	0	5
Violent deaths	34	26	21	15	19	15	24	35	33	28	27	24	298
Total by Violence, &c.	36	26	21	16	19	16	24	36	34	28	27	24	304
CLASS XIII.													
Causes not specified	6	0	5	4	1	4	3	2	4	2	2	5	41
Total Deaths from all causes	967	907	916	835	818	813	825	916	909	908	946	881	10831

NUMBER OF DEATHS IN THE DIFFERENT DISTRICTS.			
Districts.		Estimated Population in 1840.	Deaths during the Quarter.
West Districts	.....	308,921	1602
North Districts	.....	414,458	1990
Central Districts	.....	389,722	2221
East Districts	.....	411,634	2345
South Districts	.....	450,365	2663
Total (Males 5510, Females 5311) ..		1,955,000	10,821

METEOROLOGICAL RESULTS FOR THE QUARTER.					
		Jan.	Feb.	March.	Mean.
<i>Barometer</i>	Highest	30.56	30.59	30.65	
	Lowest	29.31	29.64	29.74	
	Mean	29.75	29.87	30.19	29.81
<i>Thermometer</i>	Highest	54.2	51.0	53.7	
	Lowest	22.3	27.8	30.9	
	Mean	40.2	39.4	38.8	39.7
<i>Dew point at 9 a. m.</i>	Highest	47	42	40	
	Lowest	17	23	25	
	Mean	37.0	34.9	33.5	35.6
					Total.
<i>Rain in Inches (Sum.)</i>		9.63	1.22	2.18	3.06

NOTES.

1. Under the term London are comprised the thirty-two districts mentioned in the next note, which include the City of London within and without the walls, the City and Liberties of Westminster, the Out Parishes within the bills of mortality; and the parishes of St. Mary-le-bone; St. Pancras; Kensington; Fulham; Hammersmith (Chapelry); St. Luke, Chelsea; Paddington; St. Mary, Stoke Newington; St. Leonard, Bromley; St. Mary-le-bow; Camberwell; Greenwich; St. Nicholas and St. Paul, Deptford; and Woolwich. The population as enumerated in 1831 was 1,594,890.

2. *West districts*—Kensington; St. George, Hanover Square; Westminster; St. Martin in the Fields; St. James. *North districts*—St. Mary-le-bone; St. Pancras; Islington; Hackney. *Central districts*—St. Giles and St. George; Strand; Holborn; Clerkenwell; St. Luke; East London; West London; City of London. *East districts*—Shoreditch; Bethnal Green; Whitechapel; St. George in the East; Stepney; Poplar. *South districts*—St. Saviour; St. Olave; Bermondsey; St. George, Southwark; Newington; Lambeth; Camberwell; Rotherhithe; Greenwich.

3. The diseases named in the subjoined list, when they occur, are included in the tables under the titles which here follow them respectively:

Ague, Remittent Fever	<i>Typhus.</i>
Tetanus, Chorea, Myelitis, Lead Paralysis, Fright	<i>Diseases of Brain.</i>
Laryngitis	<i>Diseases of Lungs.</i>
Hypertrophy, Rupture of Aorta	<i>Diseases of Heart.</i>
Intussusception	<i>Colic or Ileus.</i>
Stricture of Oesophagus, Hematemesis, Diseases of Pancreas, Worms, Diseases of Rectum	<i>Diseases of Stomach.</i>
Diseases of Spleen	<i>Diseases of Liver.</i>
Ischuria, Cystitis	<i>Diseases of Kidneys.</i>
Paramenia, Abscess of Ovarium	<i>Diseases of Uterus.</i>
Arthritis	<i>Diseases of Joints.</i>

Carbuncle, Phlegmon, Scald Head	<i>Diseases of Skin.</i>
Purpura, Rickets	<i>Scrofula.</i>
Inflammation of the Absorbents, Dissection Wound	<i>Violent Deaths.</i>

4. The Meteorological Results are taken from the journal kept at the apartments of the Royal Society in London, and published monthly, in detail, in the Athenæum.

MEDICAL ASSOCIATION OF IRELAND.

THE First Anniversary Meeting of the Association was held in Dublin, on Wednesday, the 27th ultimo, and was very numerously attended by representatives of the various local medical associations, and by individual members from every part of Ireland. The President, Richard Carmichael, Esq. was in the chair, and opened the meeting by an excellent address. The Report of the Council was then read by the Secretary, Dr. Maunsell, and was unanimously adopted and ordered to be printed. The meeting was afterwards addressed by Dr. O'Beirne, Dr. Morrison, Dr. Jacob, Dr. Colvan, Dr. O'Grady, Dr. Kingsley, Dr. John Jacob, Dr. O'Brien, Dr. Benson, Dr. Purcell, Dr. Ferguson, Dr. Jagoe, Dr. Hargrave, Dr. Cranfield, Dr. Macdonnell, Dr. Cane, Dr. M'Mullen, Dr. Williams, Dr. Healy, Dr. O'Reardon, Sir James Murray, and others, at very considerable length and with much eloquence. We regret that our space will only permit us to give the principal resolutions adopted by the meeting, which was most interesting, and cannot fail to be of the greatest importance to the cause of medical reform.

Resolutions passed at the Meeting.

1. That this association, in its collective capacity, is unconnected with any college, corporation, or body, and that it is designed to advance the interests of no party whatsoever, but solely and singly to promote the welfare of the public and of the members of the medical profession, without any difference or distinction.
2. That the permanent continuance of a body capable of advising and protecting medical men in the discharge of their duties and maintenance of their rights, suited to watch over professional interests, and to be the means of communicating between the profession and the government, is highly desirable.
3. That we constitute the council of this association as the organ of communication, on all matters concerning the interests of the medical profession, between its members and the government.
4. That the objects of the association are: 1. To form a society for the protection of medical practitioners in all their just and legal rights. 2. To seek for a legislative enactment giving a permanent constitution to the profession, and directing a competent and uniform standard of education and an equality of privileges for all persons who shall, in future, be permitted to practise medicine throughout the empire. 3. To secure for the public, in future, the services of a scientific apothecary, who shall be protected in the exercise of his profession, and not engage in the practice of medicine.
5. That the council be directed to prepare a petition to parliament, for the enactment of a measure which shall provide for the regulation and control of the medical charities; also praying that adequate funds shall be provided for their support.
6. That the council be directed to prepare petitions to parliament for suitable remuneration to medical men when called upon to perform public services in courts of justice.
7. That the council be instructed to prepare petitions to parliament, praying for attention to the neglected subject of medical police, and for encouragement to medical men disposed to engage in the investigation of all matters concerning the public health; and that copies of these different petitions shall be forwarded to each local secretary, in order to procure signatures in all parts of Ireland.

8 That the following plan of general medical reform shall be supported by this association : [See No. 1. of "Plans of General Medical Reform," *infra*, p. 297.]

Mr. Carmichael was reelected president; Dr. Macdonnel, Treasurer; and Dr. Maunsell, Secretary; and it was fixed that the future meetings of the association should always be held on the last Wednesday in May. It gives us great pleasure to add that the first-named gentleman has, since his reelection, placed £500 at the disposal of the council of the association, for the purpose of carrying out the objects of medical reform. This act of Mr. Carmichael is worthy of his high character and distinguished reputation, and cannot fail to influence most favorably the great cause of which he is so consistent and so enlightened an advocate. We doubt not but this example will be followed by other members of the profession; and we are disposed to call on the medical reformers of England to testify their sincerity and zeal in the same cause by a general contribution, either in small annual sums or in more considerable donations at once, to be exclusively devoted to the furtherance of the grand object. It has rarely happened that so great a measure as we are contending for has been compassed without much expenditure of money as well as of time and trouble; and when we regard the formidable obstacles to be surmounted ere we reach our aim, and the vital importance of reaching that aim, it cannot be supposed that any one who is really sincere will hesitate for a moment in giving this proof of his sincerity, if it can be shown that it is essential to the success of medical reform.

PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION.

THE Eighth Anniversary Meeting of this Association will be held at Southampton, on Wednesday, the 22d, and Thursday, the 23d of July next. We understand that the following will be the general course of the proceedings:

The first general meeting of the association will be held at the Audit House, on Wednesday, July 22, and the president, Dr. Jeffreys, of Liverpool, will resign the chair at half-past two, p. m. to Dr. Steed, the president-elect, who will then address the meeting, after which the report of the council will be read by the secretary, and other necessary business will be transacted. On this occasion the Thackeray prize for the best essay "On the Causes and Mode of Propagation of Fever" will be adjudicated.

On Wednesday evening, at eight p. m., the members will again assemble at the same place, when Mr. Dodd, of Chichester, will read a report on the progress of Surgery.

On Thursday morning, the 23d, at nine o'clock, the members of the association and their friends will breakfast together at the Royal Victoria Archery Rooms.

At twelve o'clock the same day a general meeting of the members will again be held at the Audit House, and the retrospective address will be delivered by Dr. Scott, of Liverpool, and the reports of committees will be received.

On Thursday evening, at six o'clock, the members and their friends will dine together at the Royal Victoria Archery Rooms, and at nine o'clock the same evening a conversational meeting will be held.

This is expected to be one of the most numerously attended and interesting meetings yet held by the Association; to the success of which, no doubt, the facilities of access offered by the railway, now open between London and Southampton, will not a little contribute. Every succeeding year, since the formation of this Association, has tended more fully to demonstrate its utility, and added to the number of its members, who are now nearly TWELVE HUNDRED, comprising many of the most eminent men in the profession, in all parts of the kingdom. The union of so numerous a body of practitioners cannot fail to afford facilities for the advancement of medical science, which could not otherwise be obtained, as well as to exercise a very powerful influence on all public and legislative measures, affecting the interests of the profession; while the anniversary meetings, by bringing into friendly intercourse the widely sepa-

rated members, eminently conduce to diffuse a general spirit of kindness and courtesy throughout its various branches.

The eighth volume of the Transactions of the Association has just made its appearance; but, we regret to say, at so late a period of the quarter, as to preclude our giving any detailed account of its contents. We cannot, however, let the opportunity pass of calling the attention of the profession, in this and other countries, to the most valuable memoir of Mr. Ceeley contained in it, entitled "Observations on the Variolæ Vaccinæ as they occasionally appear in the Vale of Aylesbury, with an account of some recent experiments on the Vaccination, Retrovaccination, and Variolation of Cows." This memoir extends to 150 pages, and is illustrated by thirty-five beautifully coloured plates. We entirely concur in the following judgment pronounced on this paper by the council in the preface to the volume: "Several questions of the utmost interest to the welfare of the community generally, as well as the medical science, will be found to be most ably investigated. The variolation of the cow has been satisfactorily accomplished, with the effect of thereby generating the vaccine; the characters of the vaccine in the cow, with several of its irregularities, are carefully described and figured, and some of the most nearly allied spurious forms pointed out, by attention to which many of the difficulties attendant upon a recurrence to the cow for renewed supplies of the vaccine may be obviated. Considerable light has also been thrown upon the value of the practice of retro-vaccination as a means of renewing and restoring the properties of lymph presumed to be deteriorated or otherwise altered by repeated transmissions through the human body; while the paper altogether must form a standard of reference for those who are engaged in the endeavour to extend and perfect the vaccine as a means of protecting millions from the fatal ravages of the smallpox."

BENEVOLENT MEDICAL FUND.

[We have much pleasure in giving more extended publicity to the following report; and we earnestly join in the appeal made by the committee to the members of the Association. The slightest consideration must convince every one of the strong claims of this admirable and unexceptionable charity.]

"The central committee beg to present to the Association the following summary of cases relieved since the formation of the benevolent fund: they feel convinced that it is quite unnecessary to say more in proof of the great good that *might* be done, if their means were more extended, seeing how much they have been able to effect with their present limited funds. If each member would add the small sum of Five Shillings to his annual subscription to the Association, and pay it in at the same time, specifying that it was for the purposes of the benevolent fund, the central committee would be enabled to relieve a vast amount of distress and difficulty occurring to meritorious members of the profession and their families, which they are at present compelled, from the scarcity of the funds at their disposal, to refuse.

1. The first case to which the committee were called upon to administer assistance was that of a general practitioner of many years' standing, and of irreproachable character, but whose circumstances were greatly reduced by a severe illness of between three and four years' duration; he thus found himself unable to advance the requisite money to send his son to London to complete his medical education. To assist him in this desirable and necessary matter, the central committee presented him with Fifty Pounds.

2. The next case was that of a general practitioner, advanced in life, and in very reduced circumstances, who was unable to make up the sum due for his rent. To assist him the committee presented him with Ten Pounds.

3. A gentleman of unimpeachable character, who had practised as a surgeon in New South Wales, fell into bad health, and was obliged to return to this country; his pecuniary means being inadequate to his support, he was enabled by the slight help of Twenty Pounds at one time and Ten at another, from this fund, added to the benevolent aid afforded him by the profession at Bath, to prolong his stay in that city (where he found great advantage from the mineral

springs) until such time as there was a prospect of his health being reestablished, and of his being able to return to New South Wales, and work out his own independence.

4. Ten Pounds was added to a subscription to place the orphan son of a surgeon on the foundation in the London Orphan Asylum.

5. Five Pounds was remitted to Norwich to relieve the urgent distress of the aged widow of a medical man, who by the death of her husband was left totally unprovided for and dependent upon the benevolent aid afforded her in that neighbourhood.

6. A highly respectable surgeon, a member of the Association, in the prime of life, and just beginning to have a tolerable practice in his profession, was cut off in a few days by typhus fever, caught in the performance of his professional avocations, leaving a wife and seven children totally unprovided for. Forty Pounds was contributed from this fund to a subscription for their benefit, entered into by some benevolent friends of the deceased.

7. A general practitioner in Somersetshire, with a wife and family, became from misfortune in embarrassed circumstances, and was assisted from this fund to the extent of Ten Pounds.

8. Twenty Pounds was added to a subscription for the wife and family of a medical man, who in a fit of temporary derangement had destroyed himself.

9. Ten Pounds was awarded to the widow and family of a highly respectable general practitioner in Gloucestershire.

10. Five Pounds was contributed to assist an aged surgeon with a wife and child in distressed circumstances.

11. Ten Pounds was presented to a general practitioner in Wales, reduced to extreme distress, whose case was very strongly recommended to the committee.

12. Ten Pounds was contributed to assist in the education of two orphan children of a highly respected general practitioner in Lancashire, who died in the prime of life of fever, and whose wife and two children died shortly afterwards, leaving two other children totally unprovided for. This small contribution the committee hope to be enabled to continue annually for a few years, until these children are enabled to support themselves by their own exertions.

13. This was a case of peculiar hardship. A general practitioner in the country, with a wife and family, from ill success in his profession, contracted debts and was committed to prison. After remaining some time in prison he was released by his creditors on condition that he should recommence practice and pay them by instalments. Fortune began to smile upon him; his practice improved and his prospects were encouraging; but his creditors became impatient and again threatened him. To prevent them from fulfilling their threats, a subscription was raised in the neighbourhood, and 350 pounds was raised towards the payment of his debts. Fifty pounds was however still required to make up the amount, and this sum the committee thought themselves justified in contributing to prevent the ruin of an industrious man and humble member of the profession, on whose exertions a wife and small family were dependent.

14. Five Pounds was remitted to a physician in Ireland who was labouring under temporary embarrassment.

For reasons which must be perfectly obvious the committee cannot bring the situation of the individuals who have partaken of the bounty of the society more particularly before the Association. They beg however to assure the members that the awards have been made in conformity with the principles of the society, and the regulations adopted for its guidance; and although they have had frequently reason to regret the limited means at their disposal, yet they have the satisfaction of knowing that in every instance the aid afforded has been of essential service.

Gentlemen disposed to contribute to this excellent charity, may transmit their donations or subscriptions either to Dr. HASTINGS, Worcester; along with their subscriptions to the Association; or directly to Dr. CONOLLY Castleton House, near Cheltenham, the treasurer of the fund."

DR. FOVILLE ON THE STRUCTURE OF THE BRAIN, AND ON ITS RELATIONS TO THE SKULL.

DR. FOVILLE, already well known for his valuable researches on cerebral pathology, and also for the enquiries into his normal structure of the brain, has recently presented an important memoir on the latter subject to the French Academy, of which we are enabled, by the report upon it drawn up by MM. Bouillaud and Blandin, to furnish the following account. A more detailed analysis we shall hereafter give, when Dr. Foville's work comes before us for review.

The principal part of the memoir appears to be occupied with an enquiry into the respective course of the two layers of fibres, which Dr. Foville had demonstrated in 1825, and which have been since generally acknowledged to exist in the crura cerebri, the one *inferior* and *anterior*, continuous with the pyramids; the other *superior* and *posterior*, and specially connected with the posterior part of the medulla oblongata. These two layers may be traced forwards into the optic thalami and corpora striata, and thence were supposed to radiate to the different parts of the hemispheres. Dr. Foville has since devoted himself to ascertain the course of the fibres proceeding from the several fasciculi contained in the medulla oblongata, with much greater minuteness. According to his present statement, the *pyramidal* fibres, after passing through the optic thalami and corpora striata, radiate in two planes, which are entirely distributed to the convolutions forming the external and convex portion of the hemispheres. The fibres proceeding from the *posterior* part of the medulla oblongata also divide into two planes, which encircle the others in a remarkable manner; of these the *superior* makes its exit from the exterior of the corpus striatum and thalamus opticus, soon curves upwards and inwards, and constitutes the corpus callosum, the great commissure of the hemispheres. The *inferior* plane passes out, on the contrary, beneath the pyramidal tract, and gives origin to the optic and olfactory nerves, and then constitutes a white space, superior to the corpus striatum, interior to the fissure of Sylvius, posterior to the frontal lobe, and anterior and interior to the temporal lobe, which is perforated by a number of vascular foramina symmetrically disposed. According to Dr. Foville, this place is a centre from which proceed and in which terminate several sets of arciform fibres, which form circles enveloping the pyramidal portion of the crus, and terminating severally in the hemisphere. To this group belong the *tænia semicircularis*, and others hitherto undescribed. This part of the description is obscure in the report, from the brevity with which it is rendered; but the following may be regarded as the general results of M. Foville's investigations:

The cerebral convolutions form two distinct classes; one set crowning the summit of the fibres ascending from the anterior pyramids, and in relation, therefore, with the anterior roots of the spinal nerves; the others upon the course of the posterior fibres of the medulla, and also connected with the three cranial nerves of special sense. Hence, according to Dr. Foville, it is in the external and convex surfaces of the hemispheres that the motive influence is chiefly originated; whilst their plane surfaces, and the inferior part of the temporal lobe, minister to the sensory actions. It would also seem that the commissural fibres are entirely derived from the posterior fasciculi, and thus that the sensory nerves may maintain their connexion with both hemispheres, when the motor being connected only with one are paralyzed by an injury to it; and thus loss of motion in hemiplegia is much more common than loss of sensation. He is fully convinced that the fibrous portions of the brain, like the tissue of the nervous trunks, is to be regarded only as a *conductor*; and that the cortical substance is the *material substratum*, by the intervention of which the will directs the movements.

The reporters advert to the researches of M. Gerdy on the same subject, published some time ago, as corresponding in many particulars with those of Dr. Foville. Both seem to have arrived at the same general conclusions; and they differ only in particulars. The former has investigated most carefully the annular disposition of the fibres already adverted to; the latter has devoted his chief attention to the substantiation of the fact, most curious if true, that these

fibrous circles proceed from and terminate in the posterior part of the medulla, and are thus a portion of the sensory tract; and that to this system of fibres the commissures belong.

We are disposed to feel much confidence in these statements, because we know Dr. Foville to be a most patient observer, and excellent anatomist, as well as a philosopher in the most enlarged sense of the term. Moreover, they fall in rather curiously with some views we formerly propounded, as to the parallelism between the cortical structure of the brain and the granular matter surrounding the terminations of the sensory nerves. (Vol. IX., p. 99.) We there contrasted motor or efferent* nerves, originating in the vascular plexus of the cortical substance, and having no free terminations in the muscles, but returning by a series of loops—with the sensory or afferent, which originate in the peripheral vascular plexus, and run towards the brain, where they were supposed to terminate. But the researches of Foville seem to show that they *do not* terminate there, but return by a series of loops in the cerebral substance, coming into relation with the cortical structure, on which they may be supposed to act, as the efferent fibres do with the muscular tissue.

The second part of Dr. Foville's memoir is occupied with some curious observations upon the relation between the osseous protuberances on the cranium and the *retreating* points of the brain beneath. Thus, he remarks, if we were to make an incision through the frontal eminence, perpendicular to its surface, and pursue this to some depth, we should arrive at the anterior cornua of the ventricle. In the same manner we should be conducted from the occipital protuberances to the posterior cornua; and from the parietal eminences to the large central cavity of the ventricles, in which the cornua meet: and that thus the form of the osseous covering is influenced by the condition of the ventricles to a great extent. He carries out this position in a very interesting manner; showing that, where the convolutions are large and the brain solid, the bony casing takes their form and impression; but, that where the ventricles have been distended with fluid, as in chronic hydrocephalus, they exercise an influence on the bony casing far greater than the convolutions, and the frontal, parietal, and occipital eminences are very large, whilst the impressions of the convolutions are faint. This fact, which many of our readers have doubtless remarked, has an important bearing on the general question as to the influence of the condition and development of the brain upon the size, form, &c., of the cranium. We shall look forward with much interest to the appearance of Dr. Foville's memoir.

MEDICAL REFORM.

THE consideration of the subject of Medical Reform becomes every day more interesting; and we hope we may add that the prospect of satisfactorily settling this great question becomes daily more cheering. We refer our readers for some important observations on this subject, as connected with medical education, to the conclusion of Art. VII., p. 200, et seq.; and we think we cannot do better, on the present occasion, than transfer to our pages from the Dublin Medical Press, one or two documents which are well deserving the attention of our readers. The first of these, the *PLANS*, was submitted by the Council of the Irish Association for the consideration of its members; and the *REMARKS* which follow are extracted from a letter addressed by C. T. CARTER, Esq., of Newcastle, to Dr. Maunsell, the active and intelligent secretary of the Association. With Mr. Carter's remarks we, in the main, accord; and especially in regard to the possibility and desirableness of moulding the existing corporations into harmonious union with the new structure which, we trust, is destined, ere long, to be raised for the common good of the profession.

1. *Plans of General Medical Reform.*

"1. The establishment, by law, of one faculty, having three branches, one in each of the capitals of the empire; such faculty to include all practitioners in

* The word *afferent*, at line twelve from bottom, in the page referred to, is a misprint for *efferent*.

medicine, both physicians and surgeons : each branch to be governed by a representative council, elected periodically by, and out of, the whole body of the faculty in each kingdom. The councils to have the power of making regulations for the government of the profession, and also of admitting members : no person being permitted to practise without being examined and licensed as a member of the faculty. The regulation of the three councils to be similar and uniform, general conferences being, from time to time, held in order to preserve uniformity. This "One Faculty" plan contemplates the establishment of a class of scientific apothecaries to be examined and licensed as such under the direction of the councils ; also, that no practitioner "shall be permitted to sell drugs, or to compound medicines, unless prescribed by himself, or by others in consultation with him, and for his own patients, except in rural districts, and by special license." Mr. Donovan's proposal for establishing a college of pharmacy, might, with some modifications, be made to coincide with this portion of the "One Faculty" plan.

2. The effecting, in the first instance, of educational reform by the establishment by law of three boards, which alone should have the power of examining and licensing medical practitioners, thus superseding the bodies (eighteen in number) which at present grant degrees, diplomas, or licenses in the medical art. The appointment of such board should be in one of three ways : 1, by nomination by the crown ; 2, by election by the profession at large ; or 3, by selection by the crown from names returned by the profession. This plan is intended to have the effect of ensuring a sound and uniform minimum of education, without which no person should be permitted to practise ; but it does contemplate any governing or protective institution.

3. A third plan of reform contemplates the continuance of the present corporations as examining bodies, but that they should be placed under the supervision of a board of control, empowered to superintend their operations and oblige them to preserve uniformity in their examinations and other modes of ascertaining the qualifications of persons seeking for their degrees or diplomas. That such board of control should not itself examine candidates, but should grant licenses to practice to those already examined by one or other of the existing corporations. That the license of the board should be obtained upon a mere production and verification of a certificate or certificates of qualification from one or more of the existing examining bodies ; but that without such license from the board of control no person should be permitted to practise medicine within the British dominions. The appointment of the board of control might be made in one or other of the three ways pointed out as applicable to the appointment of the examining board contemplated in plan 2."

11. *Remarks on the above Plans.*

"I should very strongly recommend the Association to leave the third plan entirely out of the question. The second is unexceptionable as far as it goes, but if it contemplate educational reform alone it falls short of what is required in the present condition of medical affairs ; but I conceive that the same tripartite medical council which, according to that plan, would regulate medical education, &c. might also act as a governing body for the whole profession. We want something more than uniformity of education, examination, and privilege. We require a governing body which shall understand and which shall represent the prevailing opinions and wishes of the profession, and which will on that ground be entitled to respect, not only from the profession, but in its dealings with the legislature. Under such auspices, the rights and privileges of men who had been licensed to practise would receive protection, public appointments wherein medical men are concerned would be properly bestowed, and matters relating to the public health, to medical jurisprudence and police, &c. would meet with adequate attention.

I am at a loss to imagine how uniformity of education and equal strictness of examination would be obtained by the third plan : I can see in it nothing but confusion. There is one insuperable objection to most of the existing bodies

which at this time have power to confer degrees, diplomas, and licenses, in the same institutions which are concerned in educating having power to examine also, and to license their own pupils. I need scarcely dwell upon the impropriety of such an arrangement. . . . It is well known that gentlemen who have passed the ordeal of their own schools or universities have been subsequently rejected by other tribunals on the ground of incompetency. I will not detain you with a recital of the many temptations which, under existing circumstances, every college must have for granting the largest possible number of degrees, diplomas, or licenses. The examining and licensing body should, I humbly conceive, be wholly independent of any and every educational establishment, and the examiners should have stated salaries, their emoluments being in no way contingent on the number of candidates who might be either approved of or rejected. I think it would be next to if not quite impossible to ensure uniformity where so many bodies would be concerned in its promotion as are sanctioned by the third of the aforesaid plans, and am therefore of opinion that the examining and licensing of all candidates for medical practice should be committed to the three boards mentioned in plan number two. But how are these boards to be constituted so as to promote the foregoing objects, and at the same time to represent the interests of the medical profession, and conjunctively to act as a governing senate? In all long-standing institutions it is perhaps desirable to bring about any proposed change with as little convulsion as possible. Now there is no class of medical reformers, so far as I am aware, who are anxious to destroy existing corporations, or to deprive them in the slightest degree of any funds they may require for the prosecution of every useful and legitimate object. This should be clearly kept in mind, as it will tend to disarm, in some measure, that hostility which would naturally be excited by any attempt to procure a new system of medical government at the risk of annihilating existing institutions. But does it follow that in depriving these bodies of the power to examine and to license we should be adopting a course which would be ruinous to them? I have of late been endeavouring to show that uniformity in admission fees, as well as in other things, would raise an income far above what would be required for the support of the three boards, and a considerable portion of which might be handed over to the present corporations, independently of the augmented revenue which, under a liberal administration of their affairs, they might expect to receive from donations, bequests, subscriptions, &c. ; and this, as was observed in the memorial of the Irish Association, "is the utmost that these bodies have a right to expect."

The establishment of the three boards (or I should rather say of the tripartite board, for the same regulations would prevail in each country), need not interfere with such duties as the present corporations are calculated to perform, and the efficient performance of which will, in any case, secure to them adequate pecuniary resources.

Respecting the construction of the three boards, three plans are proposed in the memorial just referred to, of which the third appears to me to be by far the most likely to meet with general concurrence, for the profession, I firmly believe, will never be satisfied until it be vested with power to control the administration of its own affairs. Witness the little interest felt in behalf of the University of London, wherein the senate is appointed wholly by the crown. At the same time it is perhaps desirable that any governing body which may hereafter come into existence should be placed in connexion with the secretary of state, although the members of it should not be entirely nominated by him. Existing institutions might perhaps, in the first instance, furnish materials in the formation of the national medical senatus or boards. The colleges might be opened to their members, all of whom, of a certain standing, being allowed to vote in the choice of officers, and the latter, after their election, being required to appoint delegates, who (subject to the revision of the crown), might form those central boards, to which it has been proposed to entrust the superintendence and direction of all matters relating to medical education, practice, and police, and to the preservation of the public health. . . . Some such scheme as the

foregoing appears to be hinted at in Dr. Barlow's admirable paper on medical reform, in the January number of "Forbes's Review."

The acts of any one of the three boards would be tantamount to the acts of the whole, for their members would hold periodical conferences, and would be governed by reciprocal laws and regulations. The three boards would, in fact, during their session or congress, constitute the general medical council of the United Kingdom. To their deliberations might with safety be confided all matters of detail, amongst which I would include the "questio vexata" of "grades," for by such a representative and responsible council, distinctions and titles would scarcely be conferred, except upon just and proper principles; and provided they had such for their foundation, I, for one, should have no objection to "grades."....

In the expediency of making provision for a scientific and duly licensed class of apothecaries, I most cordially agree. The dispensing of medicine, through the medium of surgeons' apprentices, as practised in England, is, in my humble opinion, reprehensible in every point of view. I should like to see the medical practitioner, as far as it may be possible, freed from the harassing cares, and petty details, inseparable from trade, and devoting his exclusive energies to the higher aims and interests of his profession. Such a provision would put an end to the degrading custom, so generally prevalent on this side of the channel, of the medical attendant being remunerated by a profit upon the medicines sent to his patient—a custom which can never be sufficiently reprobated."

ABOLITION OF THE PRACTICE OF VARIOLOUS INOCULATION.

SCIENCE and humanity have gained a great triumph by the recent decision of the House of Commons that henceforth it shall be illegal to inoculate for small-pox. For this decision the profession and the public are indebted to the persevering exertions of Mr. Wakley; and if the resolution of the House of Commons is finally passed into a law, as we hope and trust it will be, this gentleman will have just cause to pride himself on being the means of conferring an inestimable boon on his country. We greatly regret that the whole subject of vaccination has not been legislated on in a more systematic and scientific manner; but we are very thankful for the great benefit now acquired; and we hope that when the profession has obtained a proper organization and possesses a council that really represents it, the whole superintendence of this most important matter will be transferred to a scientific board.

THE TWO DOCTORS, OR THE OLD AND NEW SCHOOL.

"Look here upon this picture, and on this:
The counterfeit presentment of two brothers."

Et ces pauvres médecins! que n'a-t-on pas dit de leur air doctoral et de leurs manières empesées! Molière ne s'amusait que de leur ignorance: mais le monde, qui, cependant, croyait en eux, se moquait de leur gravité. On les accusait de faire étalage de leur savoir, de n'employer que des mots baroques, et de nous envoyer dans l'autre monde avec des adieux inintelligibles. Comme on a ride leur lourde perruque et de leur canne à pomme d'or! Que de fois on a dit: le pédant docteur! l'ennuyeux docteur! le lourd disciple d'Hippocrate! Ces épigrammes n'auraient plus de sens aujourd'hui que nos plus amusants causeurs sont nos médecins; comment ne pas se divertir de leurs piquantes anecdotes, contées avec tant d'esprit? mais aussi comment prendre au sérieux les ordonnances d'un médecin si amusant? On oublie de lui expliquer ses souffrances en l'écoutant. Oh! les médecins ne sont plus d'ennuyeux docteurs; aujourd'hui, ils sont, au contraire, très-aimables; hélas! trop aimables; et, en cela, ils sont plus cruels que leurs prédécesseurs, car, s'ils vous laissent mourir comme eux, ils vous font bien amèrement regretter une existence que leur intéressant entre-tien vous rendait si agréable.

VICOMTE CHARLES DE LAUNAY.—*Le Courrier de l'Europe*, 6 Juin, 1840.*

* A most excellent French newspaper, published in London.

THE
BRITISH AND FOREIGN
MEDICAL REVIEW,
FOR OCTOBER, 1840.

PART FIRST.

Analytical and Critical Reviews.

ART. I.

1. *Cases and Observations, illustrative of Renal Disease, accompanied with the Secretion of Albuminous Urine.* By Dr. BRIGHT. (*Guy's Hospital Reports*, No. II.—1836.)
2. *De l'Albuminurie ou Hydropisie causée par Maladie des Reins, &c.* Par le Dr. MARTIN-SOLON, Médecin de l'Hôpital Beaujon, &c. Avec planches coloriées.—Paris, 1838. 8vo, pp. 480.
On Albuminuria or Dropsy caused by diseased Kidney. By M. SOLON, M.D.
3. *Traité des Maladies des Reins et des Altérations de la Sécrétion Urinaire, &c. Avec un Atlas in Folio.* Par P. RAYER, Médecin de l'Hôpital de la Charité, &c. Tome i., pp. 625. Tome ii., pp. 620.—Paris, 1839-40.
Treatise on Diseases of the Kidneys and the Morbid States of the Urinary Secretion, &c. By P. RAYER, M.D. &c.
4. *On Granular Degeneration of the Kidneys, and its connexion with Dropsy, Inflammations, and other Diseases.* By ROBERT CHRISTISON, M.D. F.R.S.E., &c.—Edinburgh, 1839. 8vo, pp. 288.
5. *Observations on Abdominal Tumours and Intumescence; illustrated by Cases of Renal Disease.* By Dr. BRIGHT. (*Guy's Hospital Reports*, No. VIII.—April, 1839.)
6. *Cases and Observations illustrative of Renal Disease, accompanied with the Secretion of Albuminous Urine. Memoir the Second.* By Dr. BRIGHT. (*Guy's Hospital Reports*, No. X.—April, 1840.)
7. *Cases of Albuminous Urine, illustrative of the Efficacy of Tartar Emetic, in Combination with other Antiphlogistic Remedies, in the Acute Forms of that Disease.* By Dr. G. H. BARLOW. (*Guy's Hospital Reports*, No. X.—April, 1840.)

We proceed to fulfil a promise made to the readers of this Journal at the close of a former article,* that upon the appearance of another Part of M. Rayer's work, we should resume the subject of renal diseases.

In the present volume, bulky as its predecessor, M. Rayer completes

* Brit. and For. Med. Rev., Vol. VIII., p. 121.

the description of inflammations of the proper tissue of the kidneys,—the classification of which affections, as well as the characters of the *simple* variety, we have already examined. Nephritis “produced by morbid poisons,” it will be seen by reference to the article alluded to, stands next on the list to that variety, and with this the author accordingly opens his second campaign. Under this title are included inflammatory changes developed in the kidneys during the course of carbuncular affections, of glanders, typhoid and yellow fevers, variola and scarlatina, and as an effect of the phlebitis or absorption of pus occasionally witnessed as a complication of wounds, either accidental or resulting from surgical operations. Here, it will be perceived, is almost untrodden ground; for, although cases illustrating the effects of such morbid states on the kidneys may be found scattered through various works, yet the subject has never been methodically considered, nor has the relation of these allied cases been seized or acknowledged.

Nephritis, developed under these circumstances, commonly a mere closing phenomenon of a disease of the system at large, is invariably of the most dangerous character, is uninfluenced—unless it be for the worse—by antiphlogistic treatment, appears in carbuncular or gangrenous disorders to result directly from the same cause as the primary disease, but in typhoid fever may almost always be traced to the influence of retention of urine; and hence is in the one case a natural constituent of the general malady, in the other an accidental complication. M. Rayer exhibits proper discretion in abstaining from giving a general description of the symptoms and anatomical characters of this variety of nephritis; the number of cases on record is in fact much too small and their details too imperfectly related to justify generalization. With the latter fault, the narrative (occupying thirteen pages) of a case observed by this author himself cannot assuredly be charged. In this instance there was severe lumbar pain at the outset, followed by gangrenous inflammation of the gums, fetid salivation, gangrene of different parts of the surface, enlargement of the lymphatic glands, vomiting of black matters, bloody stools, epistaxis, &c. In addition to cutaneous eschars, to petechial extravasations in the heart, under the pleura and peritoneum, enlargement and softening of the spleen and gangrene of the stomach, there appeared marked enlargement of the kidneys with small collections of pus in their substance, ecchymosis and gangrene of the pelvis, and bloody urine in the bladder. A case of anthrax, related by Mr. Ewen,* is here transcribed: the kidneys are represented in this instance to have been “softened and disorganized.”

Many writers have observed that blood is sometimes discharged with the urine in the course of hemorrhagic smallpox (*variola nigra*), and in these cases the kidneys have been found engorged with dark-coloured blood and studded with ecchymoses. Under such circumstances M. Rayer has frequently detected albumen and blood-globules in the urine. These cases are, we should conceive, rather examples of passive congestion of the organs in question, coupled with altered constitution of the blood, than of actual inflammation. M. Gendrin† has, however, related a case proving that suppurative nephritis may appear as a complication of smallpox: such an occurrence must, to say the least, be singularly rare.

Intercurrent renal inflammation has been not unfrequently noticed as

* Med. Gaz., vol. xii., p. 251.

† Hist. Anat. des Inflammations, t. ii., 256.

an attendant on yellow fever; among other writers, by O'Hallaran, Rochoux, and Devèze. To the information given by these writers M. Rayer adds no original facts. The converse is the case in respect of typhoid fever;—the subject has scarcely been alluded to by his predecessors, while this observer contributes some interesting illustrations of it. We have stated that nephritis ordinarily appears as an effect of retention, but it seems from the statement of M. Rayer, to arise in some instances with such promptitude that its production cannot be thus satisfactorily accounted for. The diagnosis of the affection is obscure. The stupor of typhoid patients prevents the observer from obtaining any useful information from the state of sensibility of the renal regions; and our author instances "diminished acidity or alkalescence of the urine" (the latter according to his own previous statement occurs in one only of every twenty-five cases), "and the presence of mucus-globules, sometimes of those of the blood, with the discharge of a certain quantity of albumen," as its important signs. Although, however, the diagnosis can rarely be established with certainty, and if the disease be at once developed, we are at present acquainted with no means of controlling it, yet the observations of M. Rayer are even now practically important in showing more and more clearly the absolute necessity of carefully watching the state of the bladder, and preventing accumulation of its contents in typhoid subjects. The affection of the kidneys may, instead of amounting to actual inflammation, simply consist of hyperæmia with petechial extravasation,—a condition producing notable albuminuria.

Our author's section on purulent deposition (metastatic abscesses) in the kidneys, as a result of distant phlebitis or absorption of pus, need not detain us.

The third species of renal inflammation, the arthritic, is either gouty or rheumatismal. The former is a chronic process developed around the accumulations of uric acid in the substance of the kidney, presenting themselves with tolerable frequency in subjects of gouty diathesis. The anatomical characters of this variety of disease are the same as of simple chronic renal inflammation; but it may be distinguished during life, as well by the constitution of the patient as by the acidity of, and lithic acid deposits in, the urine, while in simple nephritis that fluid is alkaline, and its sediment generally composed of amorphous pulverulent matter, of crystals of the ammoniacal phosphate of magnesia, of phosphate of lime, or of lithates. There is little novelty in M. Rayer's description of nephritic colic or other occasional effects of this form of disease. In affirming, however, that there exists a "rheumatismal nephritis" he appears to incur the responsibility of originality. He has, as he avers, ascertained that in many subjects dying of disease of the heart or pericardium in the course of rheumatism, the kidneys also are diseased. The morbid changes in these organs, whether recent or of long standing, are, we learn, of rather peculiar aspect. In the former case one or more collections of solid plastic lymph present themselves in the cortical substance, appearing externally in the form of prominent yellow patches. The corresponding portions of the capsular membrane are generally injected, the size and weight of the kidneys augmented, and their tissue occasionally studded with small collections of pus. The prominences referred to disappear in the chronic disease, and are replaced by depressions, while the effused plastic lymph assumes, with the exception of its yellow tint, the characters

of solid condensed cellular membrane; the capsule is generally thickened and strongly adherent opposite the morbid depressions. In drawing attention to these forms of disease, M. Rayer makes no attempt to conceal the insufficiency of his present acquaintance with their distinguishing features either after or before death. He admits that lesions, resembling those just described as belonging to the acute stage, occur in certain forms of nephritis produced by morbid poisons,—and though the fibrinous deposits of renal apoplexy are said to be distinguishable from those referred to by their deeper yellow colour, by their being *often* streaked with black lines, and accompanied with other hemorrhagic deposits of perfectly black hue, it is easy to conceive the difficulty that must, at least occasionally, arise in the just appreciation of these nice distinctions, especially as they are not maintained to be constantly present. Further, such is the obscurity of the symptoms of this affection that M. Rayer admits his inability to assign any character by which it may, during life, be recognized with tolerable certainty. Suppose even—and this remark is an important one—that in the case of rheumatism, pain, after having successively visited several joints, appears in one of the lumbar regions, we cannot be by any means satisfied, as some authors would persuade us, that the seat of the suffering may be known to be in the muscles, if it be increased by motion of the trunk,—for M. Rayer has known, and we have ourselves made a similar observation in respect of milder renal affections, the pain in the kidneys singularly increased in nephritic colic by such motion. The presence of albumen in the urine of rheumatic patients, as frequently noted by M. Rayer, is not regarded by him as evidence of the existence of inflammation;—unless attended with pain in the testicle, albuminuria is not a sure sign of nephritis or even of renal hyperæmia. If the affection be recognized, it is clear the treatment will consist in pushing anti-phlogistics further than the primary disease might require. The whole subject is well worthy of further examination, more particularly as the author states that he has known this rheumatismal affection of the kidneys prove fatal in one case, where disease of the heart or its membranes had no share in causing the patient's destruction.

But enough upon these less important varieties of renal disease: in the history of the next species of inflammation, as established by M. Rayer, we should find abundant materials to engage the reader's attention through a much longer space than the plan of this Journal will permit us to engross. Let us, however, enter as fully as possible into an examination of the remarkable disease termed albuminous nephritis by the French writer, and well known in this country as "Bright's disease."

Dr. Bright, it appears, took distinct cognizance of the chronic and advanced anatomical conditions of the disease alone; and it follows likewise, from distinct avowal in his pages, that he was dubious as to the precise nature of the connexion of the lesions he described. It is true this observer has figured a distinct example of hyperæmic enlargement of the kidney, attended during life with anasarca and a coagulable state of the urine, but so little comparative importance did he attach to this morbid change, that in the general description of the disease, in his original essay, it is not made the subject of reference, while in his second production, though the complaint is spoken of as commencing with acute symptoms, no cases are related from which the writer's opinion respecting the anatomical state of the organs, where such symptoms exist, may be

gathered with precision. The attempt exhibited in the next column to trace a regular catenation of morbid changes from the mere derangement of local circulation to the most advanced disorganization must, if well founded, confer high distinction on M. Rayer. Now, that the first stage of disease exists, as described by this pathologist, seems established—the statements of others corroborate his account. And it is equally certain that we have here the anatomical evidences of intense congestion, if not of actual inflammation. The enlargement of the organ is the simple result of the stagnation of blood, and it would be not more erroneous to call an erect penis hypertrophous than, with M. Solon, thus to designate the congested kidney.* M. Solon, it is true, talks about the blood being already combined with the renal tissue in this stage of the disease, but the alleged fact that that fluid cannot be removed by washing is no proof of this,—more especially as it may be easily expressed. The characteristic feature of the next phasis, the mottled appearance produced by reddish maculæ on a yellowish ground, seen both on the external surface and in the interior of the kidney, is attributed by M. Rayer to the partial disappearance of the previous state of hyperæmia and its replacement by anæmia. M. Solon conceives, on the contrary, that the yellow tint results from more complete combination of the principles of the blood with the renal tissue, and not from a bloodless condition of the part; an opinion against which the objection already made, and obviously applicable during the first stage, now ceases to bear. In the third, the hyperæmia disappears more completely, the mottled aspect is lost, and a uniform slightly yellowish tint prevails: anæmia is now, according to M. Rayer, general. But, as M. Solon well observes, the term anæmia, which may be very correctly employed in speaking of the state of the kidneys in subjects dying of hemorrhage, is not applicable, in point of accurate description, to the discoloration now referred to. And M. Rayer himself elsewhere lends force to this observation; for he points out (p. 324) its yellow tint as actually distinguishing this condition of the renal tissue from the anæmic kidneys of certain tuberculous subjects. In the fourth phasis the previous state of discoloration still prevails, but the deposition of “Bright’s granulations” marks it distinctly; the fifth seems to be a mere modification of this stage. In the sixth, the granulations commonly disappear, and differing in this from all its predecessors, this stage is frequently marked by a tendency to congestion, contraction, or atrophy on the part of the kidney. M. Solon, it will be seen, carries us a step further, and attempts to range all renal, analogous, and heterologous products as an ordinary and necessary sequence of Bright’s disease,—a proceeding so utterly irreconcilable with what is known respecting those products and with the general laws of pathology, that we can only marvel at its adoption.

The anatomical characters of the affection claims our first attention, and in order to exhibit in a distinct manner the similitudes and differences in the descriptions of the four observers who have made them a subject of special study, we shall display these in a condensed form in juxta-position.

* This is a singular notion on the part of a writer of M. Solon’s experience. Dr. Christison, however, has no excuse for joining, in his allusion to it, in a habit reprehensibly common both among ourselves, and among foreigners in their references to English literature, namely, in ascribing to a people at large the opinions of individuals; he fathers the present mistake upon the entire community of “French pathological writers.”

BRIGHT. (1837.)

Chronic.

1st Form. The kidney loses its firmness, acquires a yellow or mottled appearance externally; the same yellow colour, slightly tinged with gray, pervades the cortical substance; the tubular is of lighter colour than natural; the size of the kidney not materially altered; there is no morbid deposit.

2d Form. The whole cortical part is converted into a granulated texture, with copious morbid interstitial deposit of an opaque white substance: the kidney is generally enlarged, sometimes very much so. (The granulations are rendered more apparent by maceration.)

3d Form. The kidney is quite rough, and scabrous to the touch externally, and is seen to rise in numerous projections of about the size of a large pin's head, of yellow red and purplish colour. The form often inclined to be lobulated, the feel hard, the texture of semi-cartilaginous firmness: tubular portions appear drawn near to the surface of the kidney.

RAYER. (1837.)

Acute.

1st Form. Kidneys enlarged, their weight may reach 12 oz.; firm but not hard; surface of a morbid red colour and studded with small deep red points. Internally, the increased size is found to depend on the cortical substance which presents a great number of similar points, apparently the Malpighian glands injected. Tubular cones of duller red colour, and their striae less distinct than natural; pelvis and calices injected.

2d Form. The enlargement persists, with slight diminution of consistence; tendency to lobulation is often observed; mottled appearance from red spots on a yellowish white ground (mixture of hyperæmia and anæmia.) On division, the cortical substance appears swollen and of pale yellowish tinge, speckled with red; the tubular of a rather bright brownish red.

Usually Chronic, rarely Acute.

3d Form. Size and weight increased as before; no mottling; cortical substance externally and on section appears of a pinkish white and slightly yellowish hue, or paler and like that of eel's flesh. Small vascular arborizations; and sometimes large white granulations resulting from deposition of plastic lymph.

4th Form. Size and weight as before; external surface smooth, of pale yellow colour, speckled or covered with milky white spots as large as the head of a very small pin; these are found also in the interior of the cortical substance (which is of the same pale colour as in the two previous forms), and aggregated into flocculent streaks.

Chronic.

5th Form. Rarer than the preceding; kidneys as before in point of size and weight; lobules unnaturally distinct; the external surface appears as if a vast number of "grains de semoule" were deposited under the cellular capsule of the organ.

6th Form. The kidney is sometimes larger but often smaller than in health, is hard and presents inequalities or mamillæ on the surface, few or no milky spots (Bright's granulations), but commonly some of these in the interior of the cortical substance. Capsular membrane almost always thickened and very adherent.

MARTIN-SOLON. (1838.)

1st *Degree or variety.* Kidney red, hypertrophous, enlarged and heavy—especially cortical substance; the tubular is also of deep red colour, but not hypertrophous; the blood combined with these tissues cannot be removed by washing; the renal substance is friable and marked with red or blackish stellate points—probably ecchymoses.

2d. Tissue, still hypertrophous, presents a yellowish striated or mottled appearance; the sulci marking the divisions of the kidney in infancy are sometimes manifest; the tubular substance is slightly hy-peræmic.

3d. Kidney almost always hypertrophous, a state still depending on cortical substance; the external surface, generally smooth, sometimes presents inequalities. Surface of a pale yellow hue, something like that of the pancreas, as likewise is the substance of the kidney internally; the cortical substance appears to penetrate between the radii of the tubular; and these latter have in some measure disappeared or tend to become of pallid colour. The tissue is soft, but to a certain degree friable, though it resists laceration somewhat.

4th. The kidney presents the yellow appearance just described; and besides white pul-taceous creamy particles, apparently produced by interstitial exhalation on the surface and in the substance of the organ (Bright's granulations.)

5th. Kidney, in addition to the anatomical characters of Bright's disease, contains some form of adventitious product (cysts, tubercles, carcinoma, &c.)

CHRISTISON. (1839.)

1. *Incipient Stage.* A minor degree of the second stage,—namely, of the deposition of a grayish-yellow, obscurely granular matter in the cortical structure, with or possibly without some degree of sanguineous congestion.

2. *Middle Stage.* The deposition of granular or cheese-like matter, the only important and well-established anatomical character of the morbid formation, seems at first to be, for the most part, chiefly confined to the cortical substance.

3. *Advanced Stage.* The morbid deposition gradually pervades the tubular substance.*

* Dr. Christison also believes that the following appearances "ought to be distinguished with the view of afterwards tracing their relationship. 1. Congestion of the kidneys with or without some granular deposit in their substance. 2. True granular degeneration of the cortical or tubular structure; *a*, finely granular; *b*, botryoidal. 3. Degeneration by a smooth homogeneous yellowish gray mass intermediate in consistence between that of the liver and that of the brain. 4. Disseminated tubercles. 5. Induration of semi-cartilaginous hardness. 6. Atrophy with disappearance of the proper renal structure, and with or without one of the previous morbid states. 7. Simple anemia."

Now it must be admitted that the gradations of disease here described seem naturally and closely connected, as far as the fourth; and though it may be difficult to demonstrate the link between the yellowish discolorations, &c. and the deposition of the granular matter, the fact is no less important that such deposition does not probably occur until the tissue of the kidney has, with greater or less rapidity, passed through the previously described phases. Should a suspicion arise that accuracy has been sacrificed to zeal for systematic arrangement, this may be dismissed with the reflection that each of these forms of disease with its special characters has repeatedly been observed by writers who entertained no particular view respecting the mode of relation of the series. The sixth stage of M. Rayer, acknowledges its connexion with its predecessors by the occasional presence of the milky granulations. Such then may, in the present state of knowledge, be fairly admitted to be the mode of progress of this disease under ordinary circumstances, and when its evolution is regularly accomplished. But it must not be forgot that, in many instances, we are without any direct proof from anatomy, or collateral

evidence from symptoms, that the disorder has originated in active congestion: the morbid changes appear indeed to advance so insensibly as almost to exclude the notion of an irritative process having existed in the affected organ.

In our arrangement of M. Rayer's *forms*, we have shown the presumed connexion between the anatomical lesion and the acute or chronic course of the symptoms. The acute affection has most frequently been witnessed in children as a sequence of scarlatina, especially according to M. Rayer, in certain epidemics, but also occurs in adults independently of any exanthematous disorder. In these cases it appears with the ordinary character of a febrile disease, is attended commonly with sickness and vomiting, and characterized by certain remarkable changes in the constitution of the urine and blood, and by effusion of serosity into the cellular membrane, or more rarely into the serous cavities. The urine is, at this period, always acid and voided in small quantity; it is at times, according to Dr. Christison, altogether suppressed, but there is little evidence of this in his reported cases, and of the nature of one of those (No. 1), apparently justifying the statement, serious doubts, as we shall presently see, may be very fairly entertained. The colour of the fluid is reddish or deep brown, depending on the presence of more or less blood; this is in rare cases so abundant as to be voided in small clots. We have already alluded (Vol. VIII., p. 128,) to the dissent between observers respecting the specific gravity of the urine in this affection. M. Rayer now somewhat modifies his former statement on the point by affirming that the density is *often* above and *rarely* below the healthy standard. The average of six cases, observed by himself and Dr. Bright, gives 1028; and if, as he remarks, intercurrent inflammation of other organs arise, the density increases still further. Dr. Christison's statements on this point are deficient in explicitness; for at page 34 he asserts that "the density now lies within the limits of health," while at page 48 we find "a moderate reduction" of specific gravity recorded among the pathognomonic characters of the incipient stage. M. Solow has on his side fallen into the serious error of omitting to distinguish, in speaking of the density of the fluid, the periods of the disease at which the observation is made. There can be no doubt that the specific gravity is comparatively high at the outset of the complaint, a fact explained by Rayer by the simple consideration that the ratio of the solid to the aqueous constituents of the urine is at this period scarcely affected. Dr. Christison, who maintains that the proportional quantity of solids is already lessened, refers the high average density to the adventitious albumen which is present, strengthening this opinion by the allegation that "if the fluid be filtered after coagulation the density falls by four, five, or even seven units." But here is a most fallacious argument; for the process just mentioned separate, not only the albumen, but also always a portion of urea, and frequently a large share of mucus or blood globules, of lithic acid, and lithate of ammonia, (*vid.* Vol. VIII., pp. 135-6.) The old mode of clarifying coffee might have reminded Dr. Christison of this fact. We are therefore disposed to agree on this point with M. Rayer. Every one will of course grant Dr. Christison that, as the quantity of urine discharged is commonly below the normal average, the total amount of solids excreted therewith in the twenty-four hours falls below the healthy standard; but

the estimate, that it falls to one fourth or one sixth of the ordinary mean is not to be confided in, as the error just referred to must have influenced this calculation also.

Examined under the microscope, the urine is seen to contain blood-globules in numbers, occasionally mucus-globules, and always lamellæ of epithelium : at this stage crystals of uric acid are rarely observed. The sanguinolent appearance may obtain for two or three days or more, and sometimes recurs after disappearance ; the degree of bloody impregnation varies from time to time, as that of the albuminous, and the abundance of the latter is not at all in the direct ratio of the former. The quantity of albumen discharged varies not only in different patients but in the same subject from day to day, nay, even from hour to hour. Dr. Christison affirms that it is always abundant during this stage, but may suddenly disappear temporarily : Rayer has "often" found the pale urine of the chronic malady "much more highly albuminous" than the deep red fluid voided in the acute stage.

The renal regions are commonly the seat of dull, rarely of acute pain. Dr. Christison speaks of frequent desire to pass urine, accompanied with difficulty or pain in the act, as existing at this period : M. Rayer affirms that these phenomena are never present except there be coexisting disease of the bladder, or fibrinous concretions of large size present themselves at the orifice of the urethra. The retraction of the testicle and pain in the direction of the ureters, sometimes observed in simple nephritis, do not appear to exist in this affection. Scarcely have the morbid changes of the urine been established, when anasarca supervenes, ordinarily commencing by puffiness of the eyelids or face, in other cases originating in the limbs, and characterized by tenseness of the skin and the absence of pitting under pressure.

To the frequency of buffiness in blood, drawn at this period of the disease, we have the testimony of all observers who have written on the subject. The specific gravity of the serum diminishes from the decreased proportion of its albumen, and may fall from 1030, the normal mean, to 1022, or even 1020 or 1019. Rayer states that the natural state may return a few days after venesection, provided that operation have rendered the urine less albuminous than it had previously been. The serum is sometimes lactescent from admixture with fatty matter removable with sulphuric æther. According to Dr. Christison, "the presence of a large quantity of urea" in this fluid may be ascertained during the present stage, provided the amount of urine have not been considerably increased by incidental causes beyond what constitutes the common average at this period. MM. Rayer and Guibourt sought unsuccessfully for albumen in two instances during the first stage. Negative evidence will not in circumstances like these, more especially as M. Rayer does not mention the quantity of urine daily discharged, counterbalance the positive assertion of Dr. Christison. But his proposition appears open to attack on other grounds. In truth, on turning to Dr. Christison's collection of cases we find not a single one conclusive of the alleged fact. Cases i. and xx. are probably those to which the author would direct our attention ; but that the former was a case of Bright's disease at all may be doubted ; and as death did not occur in the latter, the precise state of the kidneys can only be matter of conjecture ; but that it was far from being exactly such as

the narrator of the case would infer appears from the following considerations :—The subject whose history is therein given had had anasarca twice previously, twenty years and five years before he presented himself at the Edinburgh infirmary. Granted that he had in the interval been in apparent possession of good health, and that his last attack supervened with acute symptoms ; where is the proof that the man had not been voiding albuminous urine for months, for years, in a word, that the disease had not in the interim been following a latent course ? Does not Dr. Christison here fall into the very error against which he himself, even more emphatically than his coadjutors in the investigation of this disease, warns others ? Does he not totally forget the existence of his own 28th, 29th, and 67th pages, where he says there are many cases where, although the disorder may *appear* to have begun as an acute affection, traces will be found of its having existed for several months before in a chronic form ; [where is this more likely than in a case where there had been, at least, two distinct attacks previously ?] and further relates that the kidneys of a stout, muscular, and healthy woman, who had been killed in a squabble, were found “ very far advanced in granular disorganization.” Had this woman been the subject of an acute intercurrent attack before death and fallen under the notice of Dr. Christison, her blood would have furnished an excellent example of impregnation with urea “ in the incipient stage of the affection.” But, again, Dr. Christison’s mode of satisfying himself of the presence of urea, in some cases, may have its share in inducing the discrepancy of opinion referred to. It appears, that he considers effervescence with evolution of an urinous odour by the action of nitric acid on the alcoholic extract of the solids of the serum, a satisfactory proof of the presence of urea. Now, Lecanu,* and Brett, and Bird,† have shown that the peculiar odour in question is evolved when a certain extractive matter of the blood, wholly distinct in nature and properties from urea, is thus treated. Besides, MM. Guibourt and Rayer have ascertained that small solid masses simulating the nitrate of urea in sensible properties, may be obtained by the reaction of nitric acid on certain alcoholic extracts of the serum. The proportion of fibrine now varies, according to Dr. Christison, from 82 to 30 parts in 10,000—a tolerable proof of the insignificance of its ratio as an evidence of the presence of the disease : even in health the quantity of fibrine is subject to very extensive variation. Dr. Christison believes that the ratio is, in Bright’s disease, “ regulated by the amount of buffiness of the blood ;” but M. Rayer well reminds us that, as Denis has shown, the quantity of fibrine cannot in other diseases be calculated by that of the buff. The proportion of hematosine is stated by Dr. Christison to be undecreased in amount during this stage. His calculation really refers to the globules and not to the hematosine ; he himself appears to consider them the same thing.

The disease may terminate by recovery, by death, or by passing into the chronic forms. The former termination is announced by abundant sweating, by marked increase of discharge from the kidneys, with restoration of the natural characters of that discharge, and disappearance of the dropsical effusion. When the disease proves destructive to life, the fatal issue is generally preceded by cerebral symptoms or by thoracic in-

* Brit. and For. Med. Rev., Vol. VI p. 433.

† Med. Gaz., vol. xii., pp. 494, 567, 805.

inflammation. If the complaint subsides into the chronic state, the patient may recover the general appearance of health, and no sign of morbid character be present except albuminous impregnation, a point, practically speaking, of the greatest importance. This state may have continued for a variable period, when a new attack of dropsy occurs, the disease assuming the aspect of an acute disorder. A fact upon which M. Rayer insists is, that in individuals of a habit rendered cachectic by disease, or by default of healthy nourishment, the disease may wear a chronic character *ab initio*, from the absence of marked symptoms of reaction, and yet the kidneys display on inspection the anatomical characters, though in an ill-marked form, of the acute complaint. And it is also a well-founded remark of this observer that with each recurrence there is a stronger tendency exhibited to the chronic character, though, as we have just had occasion to hint, this is a rule not without its exceptions.

In the chronic, as in the acute disease, the state of the urine and of the blood, and the presence of serous effusion, furnish its principal signs: there is rarely distinct pain or tenderness under pressure in the renal regions. The urine is sometimes voided more frequently than in health. Dr. Christison dwells forcibly upon the diagnostic importance of the patient's "being awakened once or oftener in the night-time by the necessity of passing urine;" an evident proof how completely Dr. Christison's mind is engrossed by this affection, for there is probably not a single irritative state of any part of the *lower* portion of the urinary passages especially that is not productive of similar discomfort. The same writer observes, that the quantity of urine is often very little reduced below the standard of health, frequently it rather exceeds than falls short of it, but if an acute attack supervene, or if the chronic disorganization "has been allowed to go on to an excessive extent, without the case being cut short, as more usually happens, by some fatal secondary affection," it may diminish to almost total suppression: in a case of the latter kind, "the quantity, for nine days before death, did not exceed an ounce." This fluid is now commonly slightly acid, occasionally neutral or alkaline. M. Solon remarks that alkalescence cannot depend on the presence of ammoniacal carbonate, on account of the freedom from fetid odour, or from effervescence under nitric acid, and ascribes it to the sodaic salts of the serum, which find their way into the urine along with its albumen. Were this, however, a perfectly correct explanation, we should expect to find alkalescence in the direct ratio of albuminous impregnation, which is far from being the fact. The density of the urine is now invariably low, and may fall to 1004, an effect produced by diminution of its solid constituents. It is not known in what proportion this diminution affects the urea and salts respectively: M. Solon has pointed out the deficiency of calcareous salts. The fluid is pale, with scarcely any urinous odour; occasionally turbid, contains lamellæ of epithelium, and, as its chief characteristic, a variable quantity of albumen. Its sediment sometimes contains mucus-globules or blood-globules and small crystals of lithic acid; in very rare cases some pulverulent lithates are discoverable; the phosphates also are present in very feeble proportion. The slight muddiness or turbidity occasionally observed is, according to Dr. Christison, "probably owing to modified vesical mucus," but it may also depend on the suspension of fatty matter removable with sulphuric æther, as shown by

Rayer. Respecting the relative amount of albuminous impregnation in the two stages of the disease, authors vary. Dr. Osborne relates that the extent of disease discovered after death has been, according to his experience, invariably in proportion to the degree of coagulability. Rayer has found the "quantity of coagulum often greater in the acute than in the chronic disease," the whole sample of urine acted upon sometimes forming into a mass; in others, slight opalescence only being produced. It appears clearly from his chapter on the "progress of the disease," that M. Solon holds an increasing proportion of albumen to be indicative of advancing disorganization. Dr. Christison's "observation leads to the inference that the albumen abounds most in the early stage, decreases towards the advanced stage, and when abundant in the latter period, is so *incidentally from the supervention of fresh reaction*." We confess ourselves unable to account for the difference of opinion here exhibited; unless the proposition printed in italics afford the clue thereto.

Meanwhile, what is the state of the blood? As may be anticipated from what has just been said respecting the urine, contradictory notions are held on this point. If we credit Dr. Christison, "the density and solid contents of the serum, previously much reduced, gradually return to the healthy standard, or even exceed it;" in the middle stage the density is said to be about 1024; in the advanced it may be so high as 1031. The proportion of the solid constituents of the serum is on the contrary, according to Rayer, remarkably lowered to such a degree that he has found the specific gravity fallen to 1029, 1019, and even 1013. It will be observed, that in both instances the density of the serum is inversely as the different proportional quantity of albumen presumed by each of these writers to be passed with the urine; each of these has at least the merit of consistency. On this subject M. Rayer remarks, "*if* by beginning of the disease Dr. Christison understand the end of the first, or the course of the second month of the complaint, the diminution in the density of the serum is beyond a doubt sometimes very considerable; *if* by middle stage he designate cases in which, in consequence of amendment in the patient's state, a decreasing quantity of albumen is discharged with the urine, this statement is still correct. But the diminution of albumen in the urine and augmented density of the serum stated by Dr. Christison to be the ordinary characteristics of the final stage, appear to me to be of completely exceptional occurrence." (vol. ii., p. 122.) Your *if* would then fain be a peacemaker among pathological wranglers; but in this instance, at least, its pacific efforts fail, as Dr. Christison does not distinctly state anything of the kind alluded to. Nevertheless, there may be some share of justness in M. Rayer's supposition, for, judging from Dr. Christison's published cases, it may be questioned whether this practitioner has had an opportunity of observing a single indisputable example of Bright's disease in the truly acute stage; an idea which receives corroboration from the fact that he himself places "granular deposition" among the anatomical characters of the very earliest stage. Again, these observers differ: the Parisian writer has found the lactescent appearance of the serum now more marked, the Scotch less so, than in the outset of the disease. They agree, however, in stating the quantity of cruror to be commonly diminished and that of serum increased; and coincide in con-

sidering the proportion of globules diminished : M. Rayer has determined the latter point by microscopical examination ; Dr. Christison ascertained by chemical analysis that the ratio may sink to less than a third of the healthy average. The fibrine is now, according to the latter observer, most commonly natural in amount. But here the uniformity of opinion ceases. According to Dr. Christison, the urea "*frequently* disappears from the serum of the blood as the disease advances ;" while M. Rayer affirms that this proximate principle may be *more frequently* detected in the chronic than in the acute stage. The Edinburgh Professor modifies the above opinion so materially in the very sentence in which it is announced, as to involve at the least, a contradiction in terms : "in the most advanced stage," he says, "the urea *commonly* reappears, and it is sometimes present towards the close in larger proportion than ever." The variation depends, it is alleged, on the varying quantity of urea excreted by the kidneys ; whenever this is materially reduced, the principle in question may be distinctly found in the blood.

The characters of the anasarca which forms an almost invariable attendant on this stage of the affection are sufficiently well known. But respecting the importance of anasarca as a symptom there is some difference of opinion. The French describers of Bright's disease, struck with its extreme frequency, rank it among the regular symptoms of the affection ; Dr. Christison, influenced by its occasional absence, lowers it in importance to that of a mere secondary affection. If the arrangement of Dr. Christison be more scientific, (this, however, may be doubted, for we are not aware that the signification of the phrase "secondary affection" has ever been defined with precision,) that of the French authors is more practically useful, inasmuch as less danger is to be apprehended from slight exaggeration of the frequency of the condition in question, than from underrating the constancy of its occurrence. Dr. Christison upbraids the continental writers on the subject with "incorrectly considering anasarca an essential character of the disease ;" but the accusation is a groundless one : M. Solon (p. 267) recognizes the occasional absence of anasarca as an ascertained fact ; M. Rayer has figured the kidneys of individuals who had not suffered from this symptom, and M. Forget published a similar case. Whatever be the term applied to indicate the connexion of anasarca and the renal lesion, the important point to remember is, that the former is scarcely a less frequent attendant on the latter than, for example, cough on phthisis.

The volumes of MM. Rayer, Solon, and Christison contain numerous reports of cases in justification of the general statements broached by their authors. We have much satisfaction in perceiving in those of the latter writer, a very distinct improvement upon the ordinary style of records of the kind published in this country ; and though numerous defects both of matter and manner might easily be pointed out, we shall, in compliment to the general superiority of the whole, suffer these to pass without particular notice. M. Rayer's cases are divided into two grand sections : the first exhibiting the characters of the uncomplicated disease ; the second illustrating its multitudinous relations of cause and effect to certain organic and functional maladies. In his commentary on these cases, the author examines some of the most important questions connected with the general pathology of the disease. Opportunities of

ascertaining the condition of the kidneys in the truly acute stage have rarely occurred, and from the statements already laid before the reader, it follows that in the present state of knowledge there can be little surety in many instances respecting the stage of the disease from the evidence of symptoms. Besides, in respect of other renal affections, the diagnosis of the early stage of Bright's disease is anything but satisfactorily established. In proof of this, it is sufficient for the present to state that two cases, reported by M. Solon as distinct examples of the incipient affection, are regarded by M. Rayer as cases of inflammation of the pelvis, of the kidney and bladder: that Dr. Christison's case i., put forward as exhibiting "a characteristic example of the early stage of granular disorganization," is by the same French writers esteemed a case of *simple* nephritis attended with typhoid symptoms; and again, the patient of the Edinburgh author's case xix., supposed by him to have been the subject of the early stage of Bright's disease, is by M. Rayer maintained to have suffered from simple hematuria. In many cases of acute dropsy with coagulable urine, and this more especially where renal pain coexists, the kidneys are probably the seat of such congestion as would ultimately lead to the special disorganization, but it would be no easy task at present to demonstrate this, as the following paragraph will show. In the infancy of our acquaintance with a disease, we can rarely acquire scientific certainty of diagnosis unless with the assistance of the scalpel. M. Solon adds one distinct example, with the dissection, of the incipient stage of the disease to that published by Dr. Bright; M. Rayer three or perhaps four of the same kind.

We pass on to the section of M. Rayer's commentary, in which the relation of this disease to other morbid states of the urinary organs are the subject of enquiry. The result of his experience on this matter is extremely important. "I have already," he says, "had occasion to point out frequently the striking analogies between simple and albuminous nephritis. The action of cold and damp produces both diseases. In the acute stage (with the exception of deposition of pus, which has either not been observed at all, or at least very seldom, in Bright's disease,) the anatomical characters are identically the same—the injection of the kidneys, their increased size, yellow discoloration, &c., are all appearances common to both maladies. In the most advanced chronic stage, the lesions are so precisely similar, that were it not for several circumstances connected with the progress of these affections, the absence or presence of dropsy, and the constant or only occasional presence of albumen in the urine, it would be impossible to distinguish them from each other." But, adds this author, there are striking points of distinction also between these diseases, the only one cited being the marked influence of morbid states of the remainder of the urinary passages or simple nephritis, while these are presumed to be without, or at least to have very slight influence on the albuminous species. M. Solon considers simple nephritis distinguishable from Bright's disease by the absence of œdema and the presence of renal pain, nausea, and vomiting. But it must be remembered that Bright's disease, as admitted by M. Solon himself, is not attended in all cases with anasarca, and the symptoms, mentioned as peculiar to simple nephritis, decidedly occur in the so-called albuminous variety. Dr. Christison's experience does not allow him to speak de-

cidedly on the subject, "as simple nephritis is an extremely rare disease in Edinburgh." In the accuracy of the latter statement we see no reason for coinciding; it is a notorious fact, that some years since, before renal pathology had excited the attention it has of late done, the persuasion of the rarity of nephritis was universal. We have ourselves heard most eminent Parisian pathologists affirm that they had scarcely ever seen an example of nephritis—men who now in the short space of a session find abundant materials for lectures on the disease among the patients of a single ward. And again, how Dr. Christison managed to draw the inference from Rayer's works that that pathologist maintains atrophy to be peculiar to and distinctive of the *simple* chronic nephritis, we are at a loss to understand. So far is this from being the truth, that Rayer has actually figured five examples of atrophy as a dependence upon the disease described by Dr. Bright.

The reader is most probably acquainted with the case published by the late Dr. Gregory, (Ed. Med. and Surg. Jour., vol. xxxvi., p. 359,) as exemplifying the production of Bright's disease under the influence of lithotomy: the kidneys are represented to have been mottled and to have contained internally a considerable quantity of granular matter. This is regarded by M. Rayer as an example of simple nephritis, an affection of most common occurrence under the circumstances described by Dr. Gregory: the mottled appearance is quite as frequent in the latter form of disease as in "albuminous nephritis;" and Rayer is of opinion that the granular matter must in reality have consisted of pus or plastic lymph. The case furnishes an excellent illustration of the necessity of minuteness and accuracy of detail, particularly with respect to subjects of novelty. Albuminuria after lithotomy by no means proves the existence of Bright's disease; Rayer has repeatedly discovered albumen and blood-globules in the urine of subjects suffering from *simple* nephritis and cystitis after that operation.

The correctness of Dr. Christison's diagnosis in several of his reported cases is contested, and not without apparent foundation, by the French pathologist. We have already mentioned that the first case in his work is regarded by M. Rayer as an example of simple nephritis with typhoid symptoms; the truth is, that renal pathology is so little advanced that it would be presumptuous in us to attempt to decide between these discordant writers, at least in respect of the present question, yet we may be permitted to say that to our minds there is an *a priori* force in M. Rayer's objection, from the fact, that it is—or, at least was formerly,—too much the practice of Edinburgh, to set down as typhoid fever every inflammatory affection attended with typhoid symptoms. Dr. Christison's third and eighteenth cases, we fully agree with Rayer in considering examples of common inflammation affecting the bladder and kidneys, and wholly different from Bright's disease. And in his remark that Dr. Christison appears much too prone to infer the presence of granular disease from the occurrence of albuminuria, M. Rayer will, we apprehend, be joined by every one who impartially studies the work of the former. Again, the Edinburgh writer's nineteenth case refers to a subject who had abundant hemorrhage from the urinary passages followed by albuminuria, and is by the narrator considered an example of the special affection; while by M. Rayer it is esteemed an unequivocal instance of essential hæmaturia.

Dr. Christison considers (apparently on the authority of Martin-Solon) that "in hæmaturia without granular disease, the urine ceases to contain albumen, as soon as it ceases to present the colour of blood:" but his antagonist affirms that he has frequently found the urine in hæmaturia continue albuminous for some time after it had ceased to contain blood-globules, either in suspension or in its sediment.

M. Rayer considers diseases of the bladder, prostate, and urethra without influence on the development of "albuminous nephritis," and has found that the latter affection rarely induces inflammation in the pelvis and ureters, and still more rarely in the bladder. He seems disposed, however, to admit that diabetes may have some influence in its production. Certain it is, that saccharine diabetes not very uncommonly passes into dropsy with albuminous urine; but, though Dr. Bardsley declares (*Cyclo. of Prac. Med.*, vol. i., p. 543,) he has observed the lesions of Bright's disease in subjects dying with diabetes, this is not a fact generally recognized, and M. Rayer reports a case (somewhat contradictory of his opinion on this subject stated in our former notice) serving to show that, as has been alleged by others, the transformation of saccharine into albuminous urine may be a sign of amendment; if such be its import, it is difficult to suppose it an effect of the development of Bright's disease.

The attention of the observers of this disease has been drawn to its frequent accompaniment by morbid states of the heart. Dr. Bright having found sixty-seven cases of cardiac affection (hypertrophy with or without valvular disease) among one hundred of the renal disorganization, infers, without making any enquiry into their relative priority, that the latter invariably acted as the cause of the former: he further undertakes to explain their mode of connexion—"either the altered quality of the blood affords irregular and unwonted stimulus to the organ immediately, or it so affects the minute and capillary circulation as to render greater action necessary to force the blood through the distant subdivisions of the vascular system"—hence, it is presumed, the occurrence of hypertrophy: we are not informed how Dr. Bright has ascertained that morbid states of the blood produce necessarily the alleged effects, and it is obvious that affections of the valves are in this theory left altogether unexplained. Dr. Christison does not express himself very clearly or decisively as to the relation of the two states of disease, but does not adopt the curious conclusion that the cardiac are always secondary to the renal changes. M. Rayer infers from his own experience that in a very few cases indeed are the lesions of the heart an effect of those of the kidneys: he believes that Bright's disease is, on the contrary, very frequently produced by that of the central organ of the circulation, and has observed slight albuminuria, in subjects affected with hypertrophy or valvular lesions, gradually become intensely marked and attended with the most distinct evidences of the special renal affection. He adds that albuminuria, existing in subjects dying under disease of the heart or large vessels, with or without albuminuria, is not pathognomic of Bright's disease; that, according to his experience, the urine of such patients may contain albumen either in small quantity, or in large quantity, or becoming simply hyperæmic, or without their undergoing any apparent change whatsoever,—thus confirming the original conclusion of Dr. Darwall. He has even observed two cases of chronic

pericarditis attended with discharge of albuminous urine towards the close of life, the kidneys appearing on dissection simply congested; and affirms that the derangement of the circulation consequent on endocarditis may cause the escape of albumen with the urine in cases where no renal lesion of any kind exists.* In these instances, the high specific gravity of the fluid, and the larger proportion of lithates and of urea therein contained, are pointed out as peculiarities which distinguish it from the excretion in marked chronic cases of the renal disease.

All these writers coincide in their statements respecting the extreme frequency of bronchitis as a secondary disease. M. Rayer observed it in seven eighths of his cases. It is sometimes attended with very copious secretion (bronchorrhœa), and may coexist with vesicular emphysema, and lead to pulmonary œdema, or, it is affirmed, lobular pneumonia. Dr. Bright found "recent or old traces" of pneumonia in one ninth of his fatal cases; Dr. Christison has only observed this complication in two instances; M. Rayer in, at least, one twelfth of his patients. Reviewing the experience of the four writers, it appears that pleurisy—exclusive of cases in which it evidently depended on pulmonary tubercles or pneumonia—is an affection of rare occurrence in the course of Bright's disease, although the original describer of the latter affection has maintained a somewhat different opinion. The existence of old pleuritic adhesions does not appear to have been more common than in subjects dying of all diseases indiscriminately, with the exception of phthisis. Both Dr. Bright and M. Rayer point out the extreme frequency of pulmonary œdema: both have observed it in one third of fatal cases. But their experience differs respecting the connexion of phthisis and the renal disease. Dr. Bright having rarely found them coexistent, and having noticed that in some cases tuberculous disorganization appeared "to have made a certain inroad upon the upper lobes and then to have sunk into a state of quiescence or entirely subsided," is inclined to the persuasion "that so far from these diseases being *associated*, the condition of the body in this form of renal disease is unfavorable to the existence of phthisis." M. Martin Solon adopts a similar notion. Dr. Christison, on the contrary, maintains that the renal affection sometimes occurs as a secondary disease in the course of phthisis; and M. Rayer advocates the same opinion, on the ground of his having observed every form of the disease—in many instances successively developed in the hospital—coexisting with pulmonary tuberculation, manifestly of prior development. He has also observed a certain number of cases in which pulmonary consumption appears to have arisen from the deterioration of constitution induced by Bright's disease.

"With regard to the liver and abdominal viscera generally," remarks Dr. Bright, "as compared with the heart and lungs, a very great immunity from structural disease is to be observed." In the tabular view of one hundred cases drawn up by this author, the liver is stated to have been healthy in

* As mentioned in our previous article, Dr. Christison in his pleadings for the diagnostic importance of albuminuria, throws out doubts of the efficient information of the observers who professed that cardiac disease might induce this symptom. He would himself, we doubt not, be now disinclined to push this argument, as Dr. Carswell has meanwhile published an indubitable example of the fact in the *Lancet*; and M. Rayer reports at length the details of a similar case, in a chapter headed "*Albuminous Nephritis simulated by Disease of the Heart.*"

forty cases, and in thirty-two others there was merely a mottled appearance, arising probably from disturbed circulation in articulo mortis: in eighteen only were there marks of confirmed disease. Now, as the subjects of these cases were, in the great majority of instances, anything but sober persons, we have here an argument of no mean force against the prevalent conventionalism respecting the direct influence of intemperance on the liver—an influence, the amount of which has, beyond the shadow of a doubt, been monstrously exaggerated.* This result is the more important, as Dr. Christison talks of conjunction of hepatic and renal disease being easily understood, *because* both are among “the infirmities of the constitution of intemperance.” All species of lesion appear to be discovered indifferently in the liver in these cases; it occasionally contains granular matter, assimilated both by MM. Rayer and Christison to that developed in the kidneys.

The lesions observed in the other abdominal viscera and in the intestinal canal, need not delay us,—a word, however, on one of the effects of these, diarrhœa. Dr. Christison, speaking of the frequency of this symptom among the Edinburgh sufferers from Bright’s disease, wishes to impress his readers with the belief that diarrhœa is comparatively a rare secondary affection in other cities where “*the habitudes* of granular disease” have been made the subject of observation. He is informed by Dr. Bright that it “has never particularly attracted his notice in London,” and assured by MM. Andral and Louis, that in Paris affections of the bowels are not common. The alleged information from Dr. Bright is not easily reconcilable with the distinct written statement by this writer that “diarrhœa has carried off several patients,” (Guy’s Reports, No. ii., p. 339;) and as regards Paris, the experience of M. Rayer must be admitted to be more decisive on a question of the present kind than even that of the eminent persons just named; (it is besides not treating them fairly to take the statement here attributed to them *au pied de la lettre*, as misapprehension may easily arise in the verbal transmission of opinion;) now, M. Rayer has observed diarrhœa in “upwards of half his patients”—a diarrhœa remarkable for its intractability, and for its never lessening, no matter how violent it becomes, the amount of dropical effusion:—far from this, the latter seems sometimes to increase *pari passu* with the former.

“Drowsiness and torpor are common symptoms throughout the whole disease from first to last,” and so frequent are affections of the head, “more or less allied to apoplexy,” of which death by coma seems the natural termination, unless life be cut short by some other incidental cause, that “it appears not quite correct to consider these affections as secondary.” Does Dr. Christison here mean to affirm that such affections are more common than anasarca, which he unhesitatingly ranks with this category? The mode of progression of the torpid state which merges in

* The palmy days of liver pathology are happily gone by—yet how many victims do we still see salivated almost unto the death for “obstinate hepatic inflammation,” assuming the curious shape of pleurisy—how many tuberculous subjects with wandering pleuritic pains are assured that “congestion about the liver” is the only obstacle to their enjoyment of health—how often is gastric cancer modified into “mischief going on in the liver”—and how easily might instances be multiplied in which this *fascinated organ* forms the easy refuge of stolid cupidity.

irrecoverable coma, and proves the immediate cause of death in many cases, is sufficiently well known. Dr. Christison, however, in affirming without qualification that "this secondary affection may occur in the very earliest stage," broaches an opinion of debatable accuracy. At least, M. Rayer has found this of singularly rare occurrence, except in cases where the disease follows scarlatina. Dr. C. has attentively studied the relation of the state of the urinary secretion to the cerebral symptoms, and though he admits the general correctness of the common belief respecting the dependence of the latter on suppression or extreme diminution of the former, yet he shows clearly that this is not an invariable fact: "I have known," he observes, "coma form and prove speedily fatal, when thirty ounces of urine were discharged daily up to the time of death; and in case No. 3, the patient passed no more than two ounces of light urine daily for nine days before death, yet he remained sensible to the very last moment of his existence." He has also found that coma is not necessarily connected with the extent or increase of dropsical effusion. In many cases terminating fatally in this manner, the brain and meninges, it is affirmed, present no trace of lesion—a position which requires the confirmation of numerous and very minutely detailed cases before its precise truth can be admitted.* Dr. Osborne speaks of arachnitis as a common species of disease under these circumstances; and Rayer of sub-arachnoid serous infiltration as the lesion most commonly discovered, along with occasional superabundance of fluid in the ventricles: from the fluid Dr. Barlow has obtained urea. Hemorrhage into the substance of the brain, into the ventricles, or the cavity of the arachnoid, have been noted by Dr. Bright: but, on the whole, lesions of this latter kind are so exceedingly rare that M. Rayer is perhaps justified in doubting that there is any real dependence between the two states. The same must *a fortiori* be said of the "morbid tumours" discovered in the brain of one of Dr. Christison's patients, but respecting the nature of which "morbid tumours" the details, or rather the want of details, given by the author scarcely permit even a guess.

M. Rayer has observed several examples of Bright's disease as the apparent effect of pregnancy. Some of these cases were remarkable for the facility with which the disease yielded after delivery to very simple treatment. In certain instances where the disease preceded, or was developed at an early period of pregnancy, it evidently interfered with the evolution of the ovum, and in cases published both by M. Martin-Solon and himself led to fatal abortion.

A very lengthy chapter is contributed by M. Rayer on the connexion of "albuminous nephritis" and cutaneous diseases, of which the portion referring to scarlatina is alone really interesting. And in this, rendered heavy by needless prolixity, little is added to previous knowledge; even upon the most debateable point connected with the subject—the anatomical condition of the kidneys in patients suffering after that exanthema from anasarca and albuminuria—it supplies no original information: the latter omission appears to have arisen from a fortunate cause, the mildness of the affection at Paris. Yet it is fair to add that, by collecting the facts

* Of course we regard as mere non-entities cases in which the reader is obliged to content himself with the laconic statement—"brain healthy."

scattered through periodical and other works, M. Rayer has placed the reality of the occurrence of the successive stages of Bright's disease, under these circumstances, in a very clear point of view. The existence of dropsy, fever, and the presence of blood and albumen in the urine, which fluid is diminished in quantity and of low specific gravity, are the only safe signs of Bright's disease under these circumstances. Dropsy succeeding scarlatina by no means positively announces renal disorder: besides the possibility of its depending on disease of the heart or great vessels, general dropsy, unattended with coagulability of the urine, has been known to follow scarlatina, and nothing authorizes us in ascribing such affection to a lesion of the kidneys—a fact adverted to by Dr. Christison also in the same strain.

The experience of M. Rayer confirms the opinions of Drs. Hamilton and Christison respecting the influence of a scrofulous habit on the development of the disease. A case is related by the French writer, in which the urine, though strongly albuminous, contained a large proportion of lithic salts: either the patient, in this instance, was affected with renal disease or not, (she left the hospital soon after her admission;) but on either supposition, the constitution of her urine was remarkable: if she were not thus affected, by its abundant impregnation with albumen; if she were, by its full provision of urates. M. Rayer fancies that in this, and in some other similar cases, the proportion of lithates was influenced by the scrofulous habit of the patient.

From an examination of the cases published by Blackhall, Scudamore, and Bright, exemplifying the occurrence of albuminuria in gout, M. Rayer concludes that in some cases this phenomenon depends on the coexistence of Bright's disease, that in others its cause is unknown, but may possibly be "concomitant disease of the heart or a modification of diabetes."

The duration of the chronic form of Bright's disease is exceedingly variable, and indeed defies exact calculation. In the first place, we can rarely feel satisfied of the accuracy of patients in their assurance that these symptoms commenced at this or that period—not to speak of the uncertainty of such commencement as a sign of the real outbreak of the affection. Nor, even after the sufferer has placed himself under medical care, can the ulterior duration of the disease be predicted with even tolerable certainty; if the presence of albumen in the urine have been ascertained, this throws no light on the period when dropsy may supervene; nor does the establishment of anasarca make the problem of ulterior duration of easier solution.

Authors appear to have established, much to their own satisfaction, the etiology of the disease. The exposure of the body to sudden changes of temperature, and especially to the simultaneous action of cold and damp, is set forth as the most common cause of the disorder, and as being particularly evident after scarlatina. If, however, this be the fact in acute cases—and we are not disposed to contest this—it may be doubted in respect of the chronic order. We have not only no hesitation in affirming with Dr. Christison that, "since in the generality of cases the disorder establishes itself silently and very gradually, its exciting cause must obviously prove for the most part inappreciable," but we cannot help feeling persuaded that had he observed the caution which he well states to be requisite, in taking for granted the reference often made by patients of

their illnesses to cold, he would be disposed to admit, even more fully than he has done, our utter ignorance of the exciting causes of the disease. However, quasi-statistical facts are adduced by M. Rayer and others to support the current opinion ;—he enumerates a host of trades, the followers of which, he alleges, are more prone to the disease than other persons. But in the first place, he seems to have collected under this head of trades, peculiarly exposing their followers to cold and damp, the most numerously peopled artisanships of Paris ;—if they are stronger in numerical force, of course in the natural course of things they should furnish the largest quota of the disease in question

Dr. Christison finds “the constitution of intemperance” a most important predisposing cause of the disease, and makes a nice distinction of the spirit-bibbers into those who are habitual drunkards, and those who constantly indulge to a large amount, yet never enjoy themselves so fully as to lose their perpendicular in consequence. But where is the proof that the persons belonging to either of these distinguished classes of society furnish the chief share of patients labouring under this renal disease ? Has Dr. Christison, after carefully ascertaining the proportion of drunkards to sober persons supplying the inmates of the Edinburgh Infirmary, then compared the amount of renal disease furnished by each and found the drunkards in a large majority ? He dreams of nothing of the kind—and hence his inference on the subject is, to say the least, utterly valueless in a scientific point of view, more especially as, unfortunately for the moral state of the lower orders of the town population of these islands, there are few among them who would not take rank in one or other of Dr. Christison’s divisions. The curious in hypothesis will find much more to gratify their propensity in the volumes before us : but we believe we shall have the sager portion of the profession with us when we affirm that nothing of an accurate kind is known on the subject—and that so it must remain until it be studied on very different principles from those followed by the ordinary constructors of etiological chapters.

The diagnosis of the disease next claims our attention. On a former occasion we entered very fully into the existing state of knowledge respecting the causes of albuminuria, and showed from the experience of the most eminent observers the extreme error of the notion—unfortunately even still too prevalent—that the mere presence of albumen in the renal secretion announces special disease of the kidneys. We shall now proceed to the examination of another point, namely, whether the amount or persistence of this impregnation is characteristic of this particular disorder, and what other qualities of that fluid may be thus characteristic. But first we must advert to a portion of Dr. Bright’s most recent publication intimately connected with this subject. The chief motive of Dr. Bright in favouring the profession with this new communication was “to furnish himself with an opportunity of explaining his views on one important point connected with *the* disease attending albuminous urine, in reference to which he has been singularly misunderstood.” The presumed misconception under which Dr. Bright apprehends he has suffered is, that he maintains the occurrence of albuminous urine to be always and necessarily connected with “*that organic disease* which in its various shapes and modifications has been so fully described.” The learned writer then proceeds to quote from his previous writings passages showing

that he conceived the functional, preceding the organic changes, to be productive in some cases of the morbid condition of the urine in question. For our parts, we never entertained the opinion respecting Dr. Bright's notions, which he is here so anxious to disclaim; but we did believe him to suppose that some condition, whether functional or organic, connected with the disease he has described, is the sole cause of albuminous impregnation,—and that he does even still maintain this appears clearly from the passages just cited. We would point out, too, the curious fact that in the expression “the disease attending albuminous urine,” Dr. Bright appears to make the latter the cause of the former.

In the majority of cases, abundant and persistent impregnation of the urine with albumen is indicative of the presence of Bright's disease; but Dr. Morrison's case, formerly referred to, even if no other of the kind had been met with, would suffice to prove that such abundance is not a pathognomonic sign. There are few cases, however, in which, if to such impregnation be joined deficiency of saline constituents and low specific gravity, the observer may not with confidence diagnosticate Bright's disease. Dr. Christison, though in the following brief summary showing how useful the characters of the urine may become in this respect, wisely cautions the practitioner against trusting to these alone, when he has it in his power to obtain additional information from other local and general signs, the secondary affections, &c. It will be perceived that in these propositions Dr. Christison again exhibits the peculiarity of his opinions respecting some points already referred to.

“1. When the disease has continued for a short time with acute symptoms, the characters of the urine—namely, a somewhat reduced density, a diminished amount of daily discharge of solids, and high coagulability—are invariable, and do not occur conjunctly so far as is yet known in any other disorder. 2. There is a very common conjunction of characters in the advanced stage, which has seemed to me never to occur in any other malady, namely, great reduction of density, some diminution of quantity, much diminution of the daily discharge of solids, and slight coagulability. 3. Another conjunction, not less characteristic perhaps, is great reduction of density, slight coagulability, and a great increase in quantity, consequently with little or no diminution of the daily discharge of solids. 4. I have never in any circumstance, except in the advanced stage of granular disorganization of the kidneys, met with urine about the natural standard in quantity, of the very low density of 1006 or 1008, consequently defective materially in the daily discharge of solids, almost colourless or cherry-red, or smoke-brown, or orange-yellow, and obscured by opalescent muddiness which does not disappear under rest or gentle heat,—even though not coagulable. 5. Though not absolutely prepared to state the same proposition where the quantity of urine is superabundant, and its other qualities such as those last described, I am inclined to think this condition also characteristic.” (p. 56.)

The supervention of anasarca gives great additional certainty to the diagnosis: Dr. Christison supposes that the characters of this anasarca will in themselves sometimes suffice for its establishment. He has not for nine years (the number of cases observed would have been a better criterion of the value of the statement) met with a single case of inflammatory dropsy, where there were not unequivocal signs of the kidneys being diseased: he admits, however, that there may, as before intimated, be some doubt whether this is the fact in cases of dropsy consequent on scarlatina. A character frequently observed in the œdema depending on

the renal disease is, that the part does not pit on pressure: Dr. Christison considers this peculiar to it. Again, "all dropsies where the urine is steadily above the healthy standard in point of quantity occur," according to this author, "in connexion with granular kidney, except in the instance of dropsy attending the advanced stage of saccharine diabetes." He is also inclined to think, though on this point not prepared to speak with confidence, "that all dropsies where the urine not being above the healthy standard in quantity, is also below 1010 in density, are connected with granular disorganization of the kidneys, whether the urine be albuminous or not."

In the acute stage of Bright's disease when the urine is bloody and albuminous, and dropsy has not yet appeared, the case might be mistaken for essential hæmaturia, or that occurring in hemorrhagic purpura, or vice versâ; but in the latter, blood is voided in large quantities and in clots; one of the renal regions is commonly more painful than the other, and the qualities of the urine usually change in the course of twenty-four hours. Of the presumed distinction respecting transmutation into albuminuria, we have already stated the inaccuracy. We can add little to our previous statement of the difficulties attending the distinction of the incipient stage of Bright's disease; if dropsy be present, the case is clearly of the latter description; if this be absent, the diagnosis seems, except under particular circumstances, to be in the present state of knowledge impossible. The passive renal hyperæmia attending diseases of the heart is oftentimes with difficulty distinguished from the renal disorganization; for although the albuminous urine of the former is generally of healthy specific gravity and contains the normal amount of solids, yet it is occasionally much less dense than in health. Under the latter circumstances M. Rayer confesses that it is impossible to determine whether the dropsy and albuminuria depend on the cardiac malady alone or on superadded renal disease. The œdema depending on the morbid states of the heart usually commences with the ankles, and even when advanced is diminished by the horizontal posture: that occurring during the disease of the kidneys frequently exhibits itself first about the face, and is little benefited by the recumbent posture. On the distinctive marks of encephaloid and tubercle of the kidney M. Rayer has not yet spoken.

A few words may here be appropriately introduced relative to the presumed frequency of the disease. Those who have written most enthusiastically on the subject seem to us to have exaggerated this most remarkably, or at least, beyond all question, to have drawn their inferences from incorrect data. Take for example Dr. Bright, who, in order to ascertain its frequency, "instituted a series of experiments by taking the patients promiscuously as they lay in the wards and trying the effects of heat upon the urine of each and at the same time employing occasionally other reagents." We need only refer the reader to the table given in our former article of the causes of albuminuria, and to what has been said in the foregoing pages, to convince him of the insufficiency of this sign as evidence of the presence of the disease, more especially when, as appears to have been the case with Dr. Bright's experiments, the specific gravity of the urine was not examined. Need we wonder that he found the proportion of persons labouring under the disease he has described "at least one in six, if not in four?" And here is the calculation referred to with

commendation by Dr. Christison, (Pref., p. ix.)—by Dr. Christison who elsewhere rejects, as an unfair interpretation of his opinions, the notion that albuminuria is pathognomonic of the disease.

In a chapter entitled *Pathogenesis*, wherein M. Solon endeavours to trace the mode of formation of the morbid changes of the kidney, this observer states his belief that Bright's granulations are a product of interstitial exhalation and not a degeneration. Valentin's conclusion on this point, drawn from the microscopical examination of the kidneys of a child in which the cortical substance was of yellow colour and the external surface presented spots of ash-gray tint, is of a very different kind. This micrologist found the uriniferous ducts and the substance separating them perfectly normal, and ascertained that the vessels presented no unusual appearance either in respect of their diameter or distribution,—in fact, that the renal tissue possessed its healthy characters. The yellow discoloration appeared produced by a quantity of matter of that colour filling the ducts of the cortical substance, and composed of small granulated patches, of irregular and variable shape, and of yellow roundish globules. The tubuli of the tubular substance contained matter of the same kind, but in much less quantity. From these observations Valentin infers that the disease does not affect the tissue of the kidney, that this is in truth unchanged, and merely the receptacle of urine of modified properties : and hence that the albuminous state of the urine is in reality the cause of the deceptive appearance of disease in the renal tissue, instead of being the effect of real disorganization; he further infers that a morbid change of the blood leads to that of the urine. Whatever confidence the name of Valentin may warrant in the accuracy of this description, the reader will not forget that it is derived from a single observation of one form only of the disease, and therefore decidedly requires confirmation. Nor does this confirmation appear likely to be soon obtained—at least, the enquiries of Gluge seem to have led to the very different result, that the disease essentially consists in a deranged state of the capillary circulation of the cortical substance and especially of Malpighi's glands.

Is Bright's disease an inflammatory affection? In commenting formerly upon the term *albuminous nephritis*, employed by M. Rayer to designate the malady, we admitted the extreme probability that such was the fact, and the details of this author's present volume very distinctly show, as it appears to us, that such is the truth. "There is no disease," observes M. Rayer, "in the course of which the phlogistic diathesis is more distinctly marked, none wherein it manifests itself in a greater variety of situations or under a greater number of forms. In the first stage of the disease, the kidney is red, swollen, and sometimes painful; and, if we are unable to ascertain whether it be hot, we are at least certain that the changes it has undergone are productive of fever." If the inutility of the antiphlogistic treatment during the advanced stages of the disease, and its want of influence over its chronic anatomical forms generally be urged in objection to this doctrine, we reply with M. Rayer, that such is the character of the consecutive lesions of all inflammatory affections. Will bleeding remove the intestinal ulcerations and indurations of chronic dysentery—the false membranes and puriform effusion of chronic pleurisy? And, because venesection is unavailing for this purpose, shall we expunge dysentery and pleuritis from the list of inflammations? Precisely the

same line of argument may be adopted in answer to those who urge that the disease occasionally commences without active signs of inflammatory action. The qualificative "albuminous" cannot, in strictness, be reserved, as already stated, for this special form of inflammation, because simple nephritis is also attended with albuminuria.

With respect to the manner in which albuminous impregnation is produced, we need scarcely say that Valentin's notion is not that generally admitted, and that the majority of writers believe the renal disease to be the cause of that impregnation. But how are the two phenomena connected? If, as M. Solon observes, we suppose that the morbid condition of the tissues causes the serum of the blood to pass by simple transudation into the urinary passages, it may be objected that were this the case, the renal excretion should carry with it the other constituents of the blood also, which is by no means the fact. It contains no fibrine, and may hold colouring matter in suspension only temporarily, or in many cases not at all. Besides, if the serum of the blood escaped in the manner supposed, the liquid portion of the fluid remaining in the circulating system, should be proportionally less abundant than natural: now the very contrary is the truth—its relative quantity is greatly beyond the normal standard. M. Solon considers it more probable that the morbid state of the urine results from imperfect elaboration of the materials upon which the kidney acts in the normal state; in confirmation of this view, he cites the presumed fact, that the more complete the disorganization of the kidneys, the greater the quantity of albumen discharged with the urine; but, as already mentioned, the accuracy of this fact is altogether denied by Dr. Christison. The subject is plainly still open to enquiry.

Again, assuming as a position, which will be readily granted, that the anasarca is in direct dependence on the morbid state of the kidney, it may be enquired what is the mode of connexion between them. Sabatier and Martin-Solon seem inclined to believe that it depends on the increased proportion of serum in the blood and on its greater tenuity, the experiments of Magendie having proved that the facility of exhibition increases with the tenuity of fluids. Dr. Christison fancies that his experiments on the constitution of the blood lend force to this theory. It is, however, completely overturned by two facts thus stated by M. Rayer: "We know for a certainty, on the one hand, that patients affected with albuminous nephritis after scarlatina rapidly become dropsical, before any considerable quantity of albumen has been discharged with the urine; and, on the other, that individuals labouring under the endemic hæmaturia of tropical climates void albumen for years, sometimes during their entire lifetime, without becoming dropsical." (p. 608.)

Dr. Christison devotes twelve pages to the consideration of the prognosis of Bright's disease, examining successively the chance of recovery from the fundamental malady, the probability of relief from the secondary affections, and the particular symptoms which indicate approaching amendment or the contrary. With respect to the first of these points, cases of acute and chronic character, must be considered separately. The former appear to be as certainly curable, as the latter, so far as present knowledge permits us to affirm, is beyond the reach of art. The chronic forms of the disease are, sooner or later, in truth, almost invariably fatal,—but the fatal event may be averted to—we are almost justified

in saying—an indefinite period, provided anasarca have been completely removed and the patient carefully avoid all excess of every description and rigorously live according to hygienic rule. With these precautions, a life of very tolerable comfort, with freedom from every direct effect of the disease except albuminuria, may be generally ensured. Respecting the secondary disorders, it is sufficient to say in general terms that they are distinguished for obstinacy with the exception perhaps of dropsy, which is generally observed to diminish considerably or disappear in patients of the lower orders who exchange the slavery, privation, and disorder of their ordinary life for the ease, comparative luxury, and regularity of an hospital: to this change, at least, may be attributed much of the good effect produced, much more than the criers-up of the various and often opposing modes of treatment under which it has been observed to occur, are likely to be willing to admit. As to the special symptoms announcing amendment, or the contrary, we must be prepared, from what has already been said on the differences of opinion regarding the relation of the modifications of the urine to the stages of the disease, for want of unanimity between the authors. Dr. Christison, of course, considers “the risk to life by no means proportioned to the amount of albumen in the urine, and that the reverse holds true in some measure.” Rayer, Martin-Solon, and all those who maintain that the quantity of albumen increases with the advance of disorganization, must of course hold an opposite persuasion. And it is remarkable, that M. Rayer seems to think that the fact of the urine containing a small proportion of albumen would place the patient “in perfect security,” were it not that, under such circumstances, death has been known to occur suddenly from intercurrent affections of the lungs or brain. Dr. Christison, however, qualifies the above statement very considerably in the following observations: “If attended with a moderately high or gradually increasing density of the urine, whether with or without an increase in its quantity, the diminution and disappearance of albumen are favorable signs. But this will, on the contrary, rather indicate a gradual advancement of the disease, if the density of the urine should at the same time slowly decrease, especially where its quantity remains stationary. Diminution of the albumen, with increased quantity and diminished density, cannot be relied on as a prognostic on either side.” On the whole, the patient’s danger would appear to be in proportion to the lowness of the density of the urine, unless the quantity of daily discharge is considerably above the standard.

Respecting the treatment of the disease in the acute stage, authors are highly unanimous. Antiphlogistic remedies of active character are recommended by all,—and of course, the most important of these, blood-letting. “When there is no contra-indicating circumstance from age or constitutional infirmity, whether original or acquired, the extent to which bleeding is carried should,” according to Dr. Christison, “be regulated, as to extent and repetition, by the same rules which govern its employment in ordinary inflammations.” This writer gives a hint of no mean utility, in enjoining careful examination of the blood drawn, more especially in respect of its colouring-matter; by the proportion of the latter, he conceives, the degree of advancement of the structural changes in the kidneys may generally be ascertained; and if it should appear from the low proportion of colouring matter that the disease is not in its early but in some

one of its more advanced stages, and hence the acute symptoms are not strictly primary, depletory measures should be pursued with much greater caution than under the contrary circumstances. The invariable accuracy of this mode of ascertaining the amount of progress of the disease may be doubted. Local abstraction of blood by cupping or leeching the renal regions, and the application of large linseed-meal poultices, are recommended by Drs. Bright, Barlow, and Rayer. The warm bath—if used beside the patient's bed—is advised by the same practitioners.

The restoration and maintenance of the cutaneous perspiration is one of the most important points to be attended to in the treatment of this affection, according to the testimony of the majority of those who have written upon it. Hence the value of keeping the patient in an equable and tolerably elevated temperature: so important is this, that we find Dr. Bright, who confines his patients closely to bed during the entire duration even of a protracted treatment, ascribing increase of anasarca to the passage of the cool air, allowed to circulate through the wards, over the bed-clothes of the patients. The use of flannel clothing is indispensable. Diaphoretics are advised in this stage by the majority of writers, and after the employment of more active remedies are probably useful; but the best diaphoretic treatment is here, as in inflammatory affections generally, the antiphlogistic. Dr. Osborne's views respecting the administration of medicines of the class just referred to, have been too long before the profession to require discussion at our hands.

The notions of Dr. Barlow on this point, though briefly alluded to in one of Dr. Bright's early papers, having for the first time been fully explained in the last number of the Hospital Reports, may be here more fully alluded to. This physician, he informs us, struck with the slowness of recovery of patients treated by the ordinary plan of bleeding, &c., was induced to seek for some more effectual method of removing the disorder. Persuaded of the inflammatory nature of the complaint, he determined upon a trial of tartarized antimony; and the results have, he assures us, as usually happens with the devisers of novelties in therapeutics, fully answered his expectations;—and several cases, which at least prove that recovery will take place under the use of this medicine, are related. Some of these are valuable in a pathological point of view, as further contributing to prove the identity of the renal disease occurring after scarlatina with the affection described by Dr. Bright, and as exhibiting the tractableness of the complaint, when really occurring with the character of an acute disorder in adults. But the reader must not imagine that Dr. Barlow confines himself to the exhibition of tartarized antimony in diaphoretic doses—this appears a mere adjunct in the treatment, and the precise share of the sum of benefit obtained which is to be attributed to it, cannot very easily be established. Dr. Barlow “would not merely recommend tartar emetic in the acute form of this disease on account of its diaphoretic properties,—but on account of its power of lowering the heart's action, as well as its local effects upon the capillaries when it reaches them through the circulation.” If the pulse be hard and full, the medicine may be given in nauseating doses,—if not, smaller doses are sufficient. Whatever share of converts Dr. Barlow shall eventually make to the propriety of his modification of the diaphoretic mode of treatment,

it is certain that the latter is far from being held in general estimation. Rayer, whose expectations of benefit from its employment have been "rarely realized," has found that the effects of even the most powerful agent for producing perspiration—the simple or medicated vapour bath—have rarely been maintained beyond a few hours after each bath. Dr. Christison observes: "I have often resorted to the diaphoretic plan, sometimes with evident advantage, *much more generally* without success; and I must likewise add, that I have several times seen general perspiration, both spontaneous and from the use of diaphoretics, fail to produce any material relief." Yet, singularly enough, we are told in the next sentence "that no one can question the general propriety of the diaphoretic *method of cure*."

The advisability of diuretic medication in this complaint is likewise matter of dispute. Dr. Osborne thinks that, so far from being useful, it may actually produce the disease; Dr. Bright has little confidence in it; Dr. Christison, on the other hand, "has very seldom witnessed decided diminution of the dropsy unless where diuretics [diuresis] or purging was either artificially induced at the same time or arose spontaneously." This practitioner has particular confidence in digitalis and cream of tartar.

We should have felt desirous of examining briefly the peculiarities of treatment required in respect of the diseases termed secondary in this affection, but we find we have exhausted our space.

M. Rayer's volume terminates with an historical sketch, occupying one hundred pages, of the rise and progress of knowledge respecting the remarkable disease which has been under consideration—or, we should rather say, respecting its detached phenomena. In this most erudite dissertation, the laborious author traces the germ of our acquaintance with the subject in the very earliest writers: first, in regard of the connexion of dropsy and disease of the kidneys, secondly, of dropsy and coagulability of the urine. Nothing can be rendered more clear from this survey of the contributions of our progenitors than the great merit of Dr. Bright, and that this principally consists in his having detected the connexion between these *three* conditions.

Of the three treatises on Bright's disease, with the leading contents of which we trust we have now made the reader tolerably well acquainted, each has its separate merits and demerits. It is impossible, in justice, to withhold from M. Rayer the palm of superior philosophy and completeness in his mode of treating the subject; but, with all our conviction of the value of abundant detail, we are compelled to add that his volume sins by needless prolixity. M. Solon's treatise, without possessing any very distinctive excellence, is a useful and practical history of the disease; but contains numerous errors on points of minor importance. Dr. Christison's work is particularly valuable from the fulness of its statements respecting the condition of the fluids in subjects labouring under this affection; but its style is disfigured by a certain affectation which betrays its author occasionally into actual incorrectness. If we can understand the meaning of such phrases as "the habitudes of granular disease" (p. 89); "the familiar phlegmasiæ" (p. 134); "micturition was now reduced to once every hour" (p. 243); "structural derangement" (p. 134); "tubercular de-

rangement of the liver" (p. 99); "kidney dropsy, &c.," their intelligibility is assuredly their only merit. Nor are Dr. Christison's notions on pathology generally, as here exhibited, always remarkable for soundness. He employs the word "degeneration," for instance, apparently without any precise idea of its signification, and writes of the "peculiar action of vessels which leads to granular deposition," as if this were not a thing utterly unknown. Elsewhere, Dr. Christison intimates his suspicion that "perhaps" percussion is a more delicate and precise method of ascertaining the state of the liver than by "feeling and handling the abdomen"—"unless where the enlargement is very considerable." We have, of late years, in common with our betters, been accustomed to consider this as the *only* satisfactory mode of ascertaining the dimensions of this organ; and to the neglect of it is to be attributed the frequent discovery during life of "greatly enlarged livers," which same livers are on dissection often found to have miraculously retreated behind the ribs! Nor can we, in justice to the student into whose hands this volume may fall, omit to notice the statement that "the pathological states of the solids are now so far at least known, that few enquirers will be tempted to take up this investigation with the strong hope of discovery." Now, we affirm that there is not a solid in the frame which will not furnish to him who undertakes the investigation of its morbid state on correct principles an abundant harvest of rich and valuable novelty. Is this an affirmation which admits of being disputed? What then, for example, we would ask, is known with precision of the morbid conditions of the brain in insanity? Who has yet taught us to distinguish, even with tolerable certainty, the diseased changes of this viscus unconnected with madness? Is it, or is it not, notorious that truly sound pathologists are often unwilling to hazard their reputation by making any diagnosis in cases of cerebral disease, and that more bold, and yet well skilled persons having announced a cerebral hemorrhage, sometimes find a tumour, or persuaded they have been treating a case of softening are mortified at the discovery after death of uncomplicated hemorrhage? Or to change the ground—even in respect of the organ with the diseases of which we are best acquainted—the lung—and of the disease of that organ which has been most thoroughly investigated—phthisis—much remains to be done;—let the reader examine the abstract given in our last volume of M. Fournet's doctrine of the anatomical proofs of the curability of tubercle in its *first* stage, and he will at once acknowledge the fact. Nay more, it is not long since M. Cruveilhier, no mean spokesman on such a subject, stated in one of his fasciculi, adducing at the same time proofs of his statement, that the anatomical characters of pneumonia are as yet only imperfectly made out. But the experienced reader may easily continue the catalogue for himself; we have thus far volunteered guidance in so simple a matter, for the sake of those only who have just risen from the benches of the schools.

ART. II.

1. *Pathological and Surgical Observations on Diseases of the Joints.* By B. C. BRODIE, V.P.R.S., &c. Third Edition.—London, 1834.
2. *The Cyclopædia of Anatomy and Physiology*, July.—ARTICLES: *Elbow, Joint of the; Abnormal Anatomy.—Hip-joint, Abnormal Conditions of.—Knee-joint, Abnormal Conditions of.* By R. ADAMS, Esq.—London, 1837-8-40.
3. *Cyclopædia of Practical Surgery.* Part IV. January.—ART. *Articulations.* By J. BLACKBURN, Esq.—London, 1840.
4. *Dissertatio Medica Inauguralis de Cartilaginum Articularium ex Morbis Mutatione.* Auctore L. H. SCHUMER, JUN.—Groninga, 1836. 8vo, pp. 64.
- Inaugural Medical Dissertation on the Alteration of Articular Cartilages by Disease.* By L. H. SCHUMER.
4. *De Fungo Genu necnon de Tuberculis in hoc Morbo inventis.* Dissertatio quam deit. F. J. LEDERLE.—Petropoli, 1838. 8vo, pp. 81.
- On Fungus of the Knee, and on the Tubercles connected with this Disease.* By F. J. LEDERLE.—Petersburg, 1838.

THE works whose titles we have prefixed to this article will rather indicate the object than form the subject of our remarks. The first, that of Sir Benjamin Brodie, is above the need of a reviewer's praise, having already taken its just place in medical literature among the very best works of the last century. We have already (Vol. VII. p. 535,) given some account of Dr. Schumer's Essay. The Article by Mr. Blackburn evinces an extensive acquaintance with the writings of the best authors on the subject, and a judicious appreciation of their opinions; and those of Mr. Adams have much of the same practical excellence which has distinguished all his contributions to the *Cyclopædia of Anatomy*. In this respect his writings stand in strong contrast to several of the German dissertations with which we have compared them, and which, though possessing some pathological interest, as representatives of the views entertained in Germany on these subjects, might have been written by one who never inspected a human joint in a state of disease.

Our object will be to afford a succinct view of a part of the present condition of knowledge in the pathology of joints; to point out some of the general principles of disease which their morbid changes illustrate: and by the application of other general principles of pathology deduced from the examination of other diseased organs, to endeavour to remove some of the difficulties which at present obscure their explanation. Our task will be at once more satisfactory and more easy, because the diseases of joints have now, both from their importance and their pathological interest, received an unusual share of attention from some of the best surgical writers; and there is perhaps no system of organs whose diseased changes admit of more complete illustration. There is certainly no part of the body by which more important evidence is afforded of the varied progress of disease. Composed as they are of a great variety of tissues,—each of which, although it may sometimes be separately affected, is

in some degree dependent on the rest—and peculiar in their form and arrangement, and functions, the joints in their diseases present a pathological microcosm, and afford a singular opportunity of studying the effects of the same morbid processes as they are modified by peculiarities of tissue, of construction, and of vital properties.

1. *Diseases of the Synovial Membranes.* The synovial membranes are arranged on the same general plan as the serous, forming like them closed sacs. That they pass over the surfaces of the cartilages can no longer be a subject of doubt, since, in addition to the previous strong and almost sufficient evidence in favour of that view, Henle has found, with the microscope, that a fine cellular corium covered by a delicate layer of epithelium passes over the exposed surface of all the articular cartilages.* There is undoubtedly also "some analogy in the diseases" of the synovial and of the serous sacs; but it is far from perfect; and on the very first point which Sir B. Brodie mentions (p. 7), that of "swelling of a joint from a preternatural quantity of fluid collected in its cavity, without pain or inflammation," we find an important difference between the two. The dropsies of serous sacs are of two distinct kinds: in one the fluid passes out from the vessels by a power which is entirely local, by an act of secretion; in the other it transudes from them under the influence of simple mechanical pressure, which may be imitated at will by artificial injections, or its excessive effusion is the consequence of some physical change in the condition of the blood. In the first class of effusions we find the effects of pleuritis, peritonitis, and more definitely, hydrocele; in the second, the ascites of obstructed partial circulation, and the more general dropsy of obstructed circulation from disease of the heart, in which anasarca of the cellular and other soft tissues coincides with effusion into the serous sacs.

Now the synovial sacs are subject only to the first kind of effusions; to those which arise from a local secretory power. It has often been observed as a distinction between serous and synovial membranes, that the one are commonly, the other never, the seat of simple dropsical effusions, and the difference has usually been ascribed to some yet unseen diversity of tissue, or to a yet more vague peculiarity of vital action. We believe that the cause of the distinction lies in neither of these circumstances; but in the peculiar construction of the cavities which the synovial membranes line, and in the difference between them and most of those that are lined by serous membranes. As the blood passes along the vessels in healthy circulation, just sufficient fluid transudes through their walls to keep the adjacent tissues and surfaces slightly moist; but if the pressure of the blood against the walls of the vessels be increased, by any obstacle to the passage of venous blood, or (which comes to the same thing) by an increased force of the arterial blood without any increased means for its passage through the veins, more fluid must of necessity pass through the walls of every vessel that is not supported by the unyielding pressure of some firm substance around it. In all the soft and easily extending tissues therefore, and in all the cavities with yielding walls, dropsy is thus at once produced, the force of the obstructed blood being amply sufficient to distend those parts. But it is different

* Ueber die Ausbreitung des Epithelium. Müller's Archiv, 1838, Heft 1.

with the hard tissues, and the unyielding cavities, such as the cartilages, the tendons, the cerebro-spinal cavity, and the joints; in these no mechanical dropsy (such as arises from disease of the heart) can take place, for the same force by which the fluid is effused in increased quantity in the parts already mentioned, is totally unable to distend them. Hence, though all the tissues around them are soaked in fluid, no tendon or cartilage is ever anasarctous in a general dropsy; and this not for want of vessels, but because the walls of those vessels are bounded by unyielding tissues into which fluid could transude only under a far greater force of pressure. For the same reason, while in similar cases the abdomen and the pericardium are distended, and the lungs are compressed by the fluid effused from the obstructed vessels within and around them, the nervous centres in their cavity of fixed and unalterable size, and the joints with their tough unyielding walls, are unaffected.

The dropsies of synovial sacs, then, are entirely the result of a local act of secretion; they correspond to hydrocele, and to the effects of pleuritis and peritonitis, &c.; but there are no affections of the joints analogous to ascites or the coincident effusion from obstruction into other serous sacs. In passing, we would point out these facts as illustrative of the difference between secretion and mere mechanical effusion; and of the varieties of the forces by which, under different circumstances, fluids are made to pass through the walls of vessels. The force of secretion is in these cases shown to be sufficient to produce, in a few hours, such a distension of a joint as could not have been effected in as many years by the force of exudation exercised by an obstructed column of blood driven on even by an hypertrophied heart.

But this affection, this hydrops articuli, in which an increased quantity of fluid is poured into a joint without pain or inflammation, and in which the fluid differs but slightly from common synovia, is of rare occurrence. The more frequent cause of effusion of an increased quantity of fluid into a joint is a distinct inflammation of the synovial membrane.

On reviewing the cases of this class which Sir B. Brodie relates, as well as those that have fallen under our own observation, it is evident that as subjects of morbid anatomy the changes produced by this inflammation present peculiarities of two kinds—one depending on the peculiarity of the tissue itself, the others on that of its construction and arrangement. The latter have been by no means sufficiently considered, though they are of great importance in explaining some facts which, at first sight, appear anomalous.

As the subject of disease the synovial membrane cannot be abstractedly considered. Regarded as a homogeneous thin layer of tissue lining the whole joint, it is yet evident that both in health and disease the performance of its functions must be materially influenced by the character of the tissue subjacent to it, and from or through which it receives its vessels. Sir B. Brodie (page 6) states it as a principle to which all will agree, that "living organs are more subject to have their natural functions deranged in proportion as they are more vascular, and as they are employed in a greater degree in the process of secretion." But the degree of vascularity in the synovial membranes of different joints, and even in that of the same joint, is by no means fixed; the same membrane where it lines the articular cartilage is far less vascular than where it lines cellular

tissue or fat; less vascular, again, where it is placed on ligament than where it lies on bone or periosteum. The liability to inflammation, and the severity of the results of the same inflammation of a synovial membrane, will therefore be determined not by a certain vascularity peculiar to itself (as they are in muscle or in bone), but by the vascularity of the tissues beneath it; for the vascularity of the various portions of the synovial membrane is determined by that of the tissue through which each receives its vessels.

We might illustrate this principle of the influence of subjacent tissues upon the diseases of lining membranes by several examples; but we will take only one, that of the inflammation of arteries and veins. The lining membrane of the whole system of blood-vessels is continuous and in all its parts similar, whether we receive the older view of an internal thin layer of cellular tissue or the correct demonstration of Schwann, that it is chiefly composed of fibres of elastic tissue, in which, if any, a longitudinal direction is discernible, and whose surface is lined by a fine epithelium.* In either case the linings of the arteries and veins may be considered identical. Yet how different are their diseases. Acute arteritis is one of the rarest affections, but acute phlebitis is of comparatively common occurrence. And in the effects of each there is no less marked a difference; in arteritis the highest degree of inflammation produces only a slight effusion of lymph or adhesion; while in phlebitis, suppuration, and the abundant formation of lymph are common and almost constant effects. There seems no other sufficient reason for such a difference in the results of the same disease in two tissues of the same kind than this—that in the one the tissue receives its vessels from a surrounding very vascular layer of cellular membrane, in the other from a layer of elastic tissue, in which vessels are but just demonstrable; and that in each part its own vascularity is directly proportioned to that of its subjacent tissue.

Other examples of a similar kind will at once present themselves to the reader's mind. To apply the principle which they establish to the affections of the synovial membrane: The tissues on which it is placed might be arranged according to their vascularity in the following order: adipose and cellular tissue; bone and periosteum; tendon and ligament; fibro-cartilage; articular cartilage; and as a general rule (to which, however, certain local circumstances will cause individual exceptions,) we think it will be found that the morbid changes of the several parts of the membrane lining these tissues, both in severity and frequency, follow the same series.

When, for example, we examine an old diseased knee-joint, in which the history shows that inflammation commenced in the synovial membrane, we do not find its whole lining equally affected; but by far the most severe results of the disease are seen on the portions beneath which adipose tissue is placed, as above and by the sides of the patella; here it is most thickened, most spongy, most vascular, and covered by the greatest quantity of lymph; on the periosteum around the edge of the cartilage and on the front of the crucial ligaments, similar effects are much less in

* *Encyclop. Worterb. des Medicin. Wissenschaften. Art. Gefässe.* His view is confirmed by Gutenberg, Raenuschel (*De Arter. et venar. structura*), and Henle, (*Ueber die Ausbreitung des Epithel.* Müll. Arch. 1838,) though in some measure contradicted by Valentin, (*Repertorium, &c.*)

degree; and on the surface of the cartilages they are altogether absent. But the synovial membrane is over all these parts, *per se* the same; and there is every reason to believe that all of it is simultaneously and equally attacked by the disease; so that there can scarcely be any other cause for the differences than the different natures of the subjacent tissues.*

In like manner (though in the determination of this result there must be many more modifying circumstances), we believe that the comparative frequency of disease of the synovial membrane in different joints, depends in great measure on the degree of vascularity of the tissues by which the walls of each joint are formed. In none is the disease so common as in the knee-joint, and no joint has more of its synovial membrane in contact with adipose tissue; next to the knee in this respect may probably be placed the elbow, and here again a considerable quantity of loose and vascular tissue surrounds the joint; while in the hip, where there is a complete and dense fibrous capsular ligament, with the low degree of vascularity peculiar to that class of tissues, primary disease of the synovial membrane is by comparison of very rare occurrence. Sir B. Brodie regards the exposure to cold as the chief cause of the frequency of inflammation of the knee-joint, and Mr. Adams partially coincides in that opinion; the influence of cold cannot be denied, but its sufficiency may be doubted when the disease is far more rare in the wrist and ankle, which are more exposed to cold than the knee, but a greater portion of whose contour is occupied by fibrous tissues.

These circumstances, then, which are often regarded as anomalies, namely, the varied frequency of common inflammation of the synovial membrane in different joints, and the varied degrees of its severity, as exhibited in its products, in different parts of the same joint, are, we believe, fairly explained by the different degrees of vascularity possessed by the surrounding subjacent tissues, from which the synovial membrane receives its vessels. We may now proceed to the diseased appearances whose peculiarities are more probably referrible to the nature of the synovial tissue itself.

The effect most commonly and often permanently left by inflammation of the synovial membrane is thickening. This differs from the analogous change produced in a serous or mucous membrane, by the parts being less dense and firm; the thickened part is soft and easily tears; it has a spongy œdematous character; its free surface, instead of being smooth and polished, acquires a delicately granulated or almost villous aspect, not unlike that of a granular conjunctiva; and at the edges of the cartilages it often overlaps them, just as a chemotic conjunctiva overhangs the margin of a cornea.†

In this condition the tissue of the membrane undergoes no material change; it is only swollen by the effusion of serous fluid and usually of

* By this explanation, too, the chief objection urged against the presumed passage of the synovial membrane over the cartilage is destroyed; if the cartilages themselves are obscure in their manifestations of disease, so must be the membranes which are so intimately connected with them, and which receive from them a great part of their vascular supply.

† In this as well as in many other circumstances, in both their natural and morbid structure, one cannot but be struck with the closeness of the analogy between synovial membrane and the conjunctiva. The comparison was first made by W. Hunter, who was, indeed, in this part of his descriptions, singularly felicitous; witness the famous comparison of the serous sacs to double nightcaps.

lymph into its areolæ, which, if the affection be not complicated with other articular diseases, are often rapidly removed after counter-irritation or other means. There is another state which possesses some, though an obscure, relation to this simple thickening, but which is much more serious in its nature. Sir B. Brodie regards it as a change peculiar to the synovial membranes of joints, and belonging to the same class with tubercle, carcinoma, &c.

"The morbid action evidently originates in the synovial membrane, which loses its natural organization and becomes converted into a thick pulpy substance of a light brown and sometimes of a reddish-brown colour, intersected by white membranous lines. As the disease advances, it involves all the parts of which the joint is composed, producing ulceration of the cartilages, caries of the bones, wasting of the ligaments, and abscesses in different places." (p. 79.)

This form of disease is that which Dr. Lederle, with most of the German writers, describes as *fungus genu*, and to which he applies the extraordinary appellation of "*dynamico-vegetative pseudoplasm*." It is also one (and if they understood anything definite by the name, the especial) form of disease described by the old writers as white swelling. We are inclined to think that it is more commonly an effect of simple chronic inflammation of the membrane than Sir B. Brodie regards it; its most common situation, the knee, is that in which the synovial membrane is far most frequently inflamed; its history is often that of protracted inflammation; the shades between it and common thickening are so numerous that they are scarcely separable; and it does not, like other specific or malignant diseases, affect either the same tissue in different parts or different tissues coincidentally. Further pathological investigation is still necessary on this subject; the interest of which is the greater because the disease in its advanced stages admits neither of cure nor alleviation; and if it be in any case the result of the neglect of a more simple disease, its prevention should of course be the object of much greater care than is usually bestowed on common stiff joints.

In thickening of synovial membranes, serum and lymph are effused in the areolæ of its tissue, and very generally in the adjacent parts, which become hard, tough, and unyielding, lose all their power of sliding upon one another, and in some cases form an almost homogeneous, brawny, infiltrated mass, in which the dissector has difficulty in discovering even those things that in health are among the most prominent. At the same time lymph and serum may be secreted on the free surface of the synovial membrane and into the cavity of the joint. The effusion of lymph, however, is on the whole less frequent in the synovial than in the serous sacs; a circumstance in which again they appear in some measure intermediate between serous and mucous membranes. The lymph may form adhesions between the opposite surfaces of the membrane; for adhesions are the result of inflammation, not of any particular tissue, but of all tissues which are so arranged as to present two surfaces sufficiently near each other to permit the lymph effused upon one to adhere to that upon the other, and thus in one mass with it to be organized. Where this arrangement is wanting, whatever be the tissues inflamed, it is evident no adhesion between them can take place. In the synovial sacs adhesions are on the whole less frequent than in the serous; probably in consequence of the little power which some of the tissues composing the former

possess of producing or receiving new vessels. Thus, suppose lymph effused on the surface of a synovial membrane opposite a cartilage; the chance that the cartilage will either produce or receive new vessels to communicate with those that form in the lymph is but slight. But there are only a few parts of the joints in which the synovial membrane covering one tissue is not opposed to that covering cartilage, and the adhesions that do form are generally found in these parts, as, for example, where the synovial membrane of the wall of the joint is opposed to its own reflexion over the bone. Hence in the knee, the frequency of the cases in which the cavity of the articulation is obliterated above the patella, and at the sides of the condyles of the femur, and round the head of the tibia. The cases are rare in which adhesions to pass the surface of the synovial membrane covering the cartilages: but they occasionally happen and are, we think, more common in the ankle than in any other joint. There are several specimens of the kind in the museum of the College of Surgeons; and we have seen more than one in which a distinctly vascular adhesion passed from one cartilage to the other without having any connexion with the more vascular parts of the synovial membrane lining the walls of the joint; evidence which alone affords as good proof of the vascularity of cartilage as most *facts* in medicine are based upon.

The next degree of the effects of inflammation of the synovial membrane is suppuration. It affords a good example of the production of pus without ulceration; though the doctrine of suppuration from a sound tissue has lost its verbal truth since Henle proved the existence of a synovial and a serous epithelium, and rendered it probable that before pus-globules can be produced from a membrane's surface, the epithelium cells must be removed. The pus is therefore produced from the *raw* surface of the synovial membrane, just as it is from the cutis when its epidermis is removed. The production of pus, like that of dropsies in synovial sacs, is by a process of secretion, which overcomes all the resistance of the walls of the joint, and often distends them to an enormous size. In this case there can be no doubt of the propriety of Sir B. Brodie's advice that the fluid should be let out by an opening made into the joint; the sufferings which the patient endures from an otherwise irremovable and still increasing collection of fluid distending all the tissues around it, at once declare the necessity of the measure. He limits the practice to these cases; and except in considerable collections of pus we cannot but doubt the propriety of cutting into a joint. Yet there are many good practitioners who do not hesitate to adopt the same means in many other cases, under the idea that the inevitable ankylosis will be accelerated. Their arguments for this practice, however, seem to furnish their own contradiction: it is true that ankylosis often follows the wound of a healthy joint, and so does death sometimes; but, say they, the opening of a diseased joint is very different from opening a healthy one, it produces no ill effect, and may be done with perfect safety. But if it produces no ill effect, will it produce ankylosis, which is the most common ill effect that follows it when performed on a sound joint? For what are the obstacles to the occurrence of ankylosis in the common course of the disease which the operation removes? We believe none—unless the opening lets out such a quantity of fluid as was sufficient to separate the surfaces that should adhere. For osseous ankylosis to take place, the cartilages must

be removed and the bones exposed; granulations must arise from each of them, and uniting become osseous; if pus or any other fluid keep the granulations apart and prevent their union, it should undoubtedly be removed; but if not, the process will go on as plainly as the union of a simple fracture, and, for aught we can see, it would be as wise to pass a lancet between the ends of a broken bone, under the idea of accelerating their union, as to open a joint not full of pus in the hope of accelerating its ankylosis.

If the pus be not artificially removed from a joint, it will slowly make its way out by ulceration through one of the spaces between the dense tissues of the walls, or if the joint have a capsular ligament, through the meshes of its fibrous fasciculi. The aperture first forms where the resistance is least, in accordance with common physical laws; the fluid pressing equally in all directions distends and produces its injurious effects most rapidly where the parts are weakest. The artificial opening of the distended joint is thus the more advantageous because it is a rare coincidence in which the weakest is at the same time the most dependent part; and a naturally formed opening will seldom be placed so as to permit the fluid to pass off by it rapidly enough to keep the joint empty. Thus in the knee, openings most frequently form at the sides by the lateral ligaments; or in front just by the sides of the ligamentum patellæ; or if they form behind, it is too often by the pus creeping through a long and tortuous course, in the ham and down by the heads of the gastrocnemii. An artificial opening may of course be made wherever the patient's position and other circumstances render it most desirable; *cæteris paribus*, that which Sir B. Brodie recommends, in the most depending part, will be the best.

That important morbid condition in which pus is simultaneously deposited in a number of joints is still, as to its pathology, most obscure. Scarcely any advance has been made in our knowledge of it since Mr. Arnott's admirable paper on Phlebitis was published in the *Medico-Chirurgical Transactions*. Of its frequent coincidence with phlebitis there can be no doubt; but it is far from proved to be a consequence of it: on the contrary, cases are not wanting in which the venous system, though carefully examined, has been found quite sound. On all connected with these cases much more evidence is yet required; and it is to be hoped that their explanation will be one of the first practical results of the microscopic observations on pus and suppuration, which are now occupying so many active minds, but have as yet been lamentably barren of profitable results.

In the natural progress of disease the pus formed in a joint will pass out of it by ulceration; it is much more rare for it to pass from without inwards, and by ulceration to produce perforation of a joint. But such cases (though as yet, we believe, almost undescribed,) do occur, and they are perhaps the most terrible in their symptoms and progress of all the diseases that affect the joints; for they are equal to the ulcerative perforations of the serous sacs in their rapidity of local progress, and though less quickly fatal, are even far more painful than they are. Happily the conditions in which they can occur are but few; they are only those in which a collection of pus is formed in some tissue adjacent to a joint, and is prevented from making its way externally by some dense unyielding

substance between it and the surface of the limb. This is sometimes the case when the head of a bone is necrosed, or has a suppurating cavity formed within it; as the fluid increases, and the bone around it is removed, it may at last perforate the joint through the ulcerated cartilage, and the destruction that follows it is alike rapid and painful. More rarely, an abscess formed externally to the joint opens into it at some part where the synovial membrane is guarded by weaker tissues than those which lie superficially to the pus, and in these cases also, a rapid destruction of cartilage, with intense inflammation of the synovial membrane and the most acute suffering are sure consequences. Amputation, which the severity of the symptoms at once demands, probably affords the only prospect of recovery.

We have considered the several degrees of the affection of the synovial membrane separately, because it is of the utmost importance in their treatment to know that in the early stages of disease of the joints only this part may be affected, and that, therefore, the limb may by timely and proper care be restored to complete health. Sir B. Brodie particularly insists on the necessity of knowing what the early conditions of these diseases are, before they have proved fatal to the limb or life by involving all the tissues adjacent to that primarily affected. It is probably from lack of opportunity of observing these early changes, that nearly all writers but himself describe the affections of joints as so complex and so rarely isolated in any one of the tissues composing them. This is in some measure the case with Mr. Adams, who, though not denying the probability that the diseases of a joint may commence in any one of its tissues separately, yet refuses to take advantage of the evident distinctions that might be founded on that fact, and writes of inflammation of the hip-joint (*arthritis coxæ*) in general, distinguishing only the three forms of acute, strumous, and chronic rheumatic inflammation; and of the diseases of the knee-joint, under the general name of arthritis genu, distinguished only into acute, simple chronic, chronic rheumatic, and chronic strumous arthritis. This, however, is depriving morbid anatomy of much of its practical benefit. To be sure, when we get a diseased joint to look at, it is in general only when it had ceased to afford any hope of ever being useful to the patient, and when he is either dead or maimed; and then no doubt we may find the ravages of synovitis, chondritis, osteitis, and many more such enemies as formidable in nature as in name; but we should remember that there probably was a time when there were fewer to contend with; that all these crept in one by one, each establishing himself on the ground near that which was already occupied by one of his allies. If anything is to be done for the cure of this class of diseases it must be attempted before many of the tissues are affected; the chances of benefit are always inversely to the number of those terrible *ites*, and the more separately we consider them all the better shall we be prepared to combat with each.

11. *Diseases of the Articular Cartilages.* We pass now to the consideration of the morbid alterations of the articular cartilages, and we come at once upon a fundamental question: Are there any proper diseases of articular cartilage? Are not all those that are so called the results of disease of the adjacent tissues and of the action of their products?

The doubtful circumstance on which the answers to these questions must ultimately depend is the organization, or, to speak more definitely, the vascularity of the cartilages. We will first consider the statements and opinions of those who oppose the vascularity and independent morbid alteration of these tissues, and then express our own opinions and those to which we assent.

The work of Dr. Schumer affords a good summary of the arguments generally advanced by the opponents of the independence of cartilages. The vascularity of articular cartilage might, as he rightly says (p. 11), be determined, 1st, by the flow of blood from a wound of its substance; 2d, by injection; 3d, by microscopic examination; 4th, by the morbid changes, if they are of the kind which cannot occur without vessels. But by none of these means, he and many others affirm, can their vascularity be demonstrated.

That no blood flows when an articular cartilage is wounded we readily admit; but no blood flows when the iris is cut, as in making an artificial pupil, or in any other operation, unless it is torn away from the ciliary ligament. Yet who doubts the vascularity of the iris, or that it is subject to peculiar diseases? And the tissue of articular cartilage is even more adapted for the prevention of hemorrhage from vessels divided in it than that of the iris is; for it is compressed within the limits of the space which by its unrestrained elasticity it would occupy, and, therefore, when it is cut its particles instantly spring up against each other, and at once close any vessel that may be divided. The evidence of the absence of bleeding from its wounds is therefore valueless; the hemorrhage from a tissue is not directly proportioned to the size of its vessels, but to the circumstances in which they are placed, whether the tissue around them is unyielding or loose, whether and how soon they can contract, &c.

The evidence of injection is equally unsatisfactory. It is, we believe, true that no one has yet succeeded in forcing a coloured fluid into the very substance of the healthy articular cartilage; but it may be driven into vessels running over its free surface. We have done this in a perfectly healthy joint; but it is much less difficult when, by an inflammation, the synovial membrane covering the cartilage is slightly swollen; injection will then pass in distinct branching vessels derived from the *circulus articuli vasculosus*, for more than half an inch over the edge of the cartilage, in exactly the same manner as the vessels pass from the conjunctiva over the front of the cornea. Now it is not in the smallest degree probable that these vessels stop suddenly at this distance upon the surface of the cartilage, without passing like those of the cornea (to which they are in other respects so similar) over the whole surface, and dipping into the substance of the cartilage itself. Nor is it more probable that a dense non-vascular tissue should thus be placed between two vascular surfaces; there is but one instance in the body of a non-vascular organ so situated—the crystalline lens—and we need not say how distant is the analogy drawn between it and an articular cartilage.

In addition to these vessels of the synovial membrane covering the cartilage, we believe that another set exists which pass vertically from the bone through the little canals, which are so distinct by the pink points that are seen when a slice is cut from the surface of the cartilage of a young animal. These have not indeed been yet injected; but the art of

injecting is not yet so perfect that from its negative evidence we can have any right to draw a positive conclusion. The vessels of the healthy cornea have been demonstrated by injection only within the last four years; those of the cartilages of the ribs and larynx within the last ten years; and those of the tendons have only been injected within the last twelve months. The articular cartilages evidently present many more difficulties to injection than these; but there is no reason to believe that they may not yet be surmounted. Till the tissues just mentioned had been injected, their vascularity was denied or doubted by those who are not content with any but visible proofs; but long previously, their morbid changes were sufficient to establish their vascularity to every impartial mind.*

That vessels should be invisible when the articular cartilages are examined with the microscope is no wonder; they cannot when empty be discerned by it in many even of the most vascular tissues.

We come, then, lastly, to that which is by far the most interesting and important argument for the existence of an independent morbid action in the cartilages, and that such an action as we cannot conceive to be carried on without blood and blood-vessels—the changes which they undergo in disease. This subject has been examined experimentally, and especially by Dörner,† Gendrin,‡ Cruveilhier,|| and Schümer, and the general result of their investigations is the impossibility of exciting any evident inflammation in an articular cartilage by any mechanical injury. But it is clear that these cases furnish of themselves the contradiction to the conclusions drawn from them; for no effect was produced by the injury upon the cartilage, although all the other tissues of the joints were vehemently inflamed. Now, if the cartilage were not destroyed by the action of its own vessels, why was it not destroyed by those means to which they ascribe its destruction in common inflammations of joints? The experiments show that in the midst of a most acute inflammation of the synovial membrane, such as is produced by cutting a joint wide open, the cartilages remained for some days unaltered. They, therefore, prove nothing; for they are as strong evidence against the power of any external means produced by synovial inflammation to destroy the cartilages as they are against the cartilage being able to destroy itself. They only prove that in an acute inflammation of a joint the cartilages are not always ulcerated.

But suppose that by disease or after an experiment the cartilage is removed from the head of a bone. What are the means by which that removal has been effected? Softening and solution in the pus or other fluid effused into the joint? Absorption by the surrounding synovial membrane, or a tissue produced from it on purpose? Or independent ulcer-

* Since this was written our belief has been most happily confirmed by Mr. Liston's account of his injections of the articular cartilages of diseased joints, in a paper read at the Medico-Chirurgical Society. Of course we can at present only announce the fact; but we may add that an inspection of the specimens that were exhibited in the Society's rooms unequivocally established the author's description of vessels in the very substance of the cartilage. The injections were among the most beautiful we have ever seen; and we cordially congratulate their possessor on having surmounted the greatest difficulty of this art.

† *De gravioribus quibusdam cartilaginum mutationibus.* Tuburg. 1796.

‡ *Histoire Anatomique des Inflammations.*

|| *Archives Générales de Médecine.* Fevr. 1824.

rative action in the cartilage itself? The first is the common opinion of those who do not receive the third—the second is that propounded by Mr. Key*—the third is that of Sir B. Brodie and many others, and that which we have now little hesitation in adopting. The first two explanations can be applied only to those cases in which the cartilage is progressively removed from its synovial surface towards the bone; they can have no application in the cases in which its removal is effected in the opposite direction, in which it is, as it were, undermined and its connexion with the bone destroyed. In these latter cases it is by all supposed to be absorbed by granulations produced from the bones; but we shall offer some reasons for doubting the correctness of this view.

First, for the theory of solution in pus. Schumer relates an experiment in which a portion of cartilage, placed in a suppurating fistulous passage, was found after seven days opaque and yellowish, and half dissolved. But ten such experiments could have no weight against the fact which every one must have had the opportunity of observing, viz., that after pus has remained even for many days in a joint, the cartilages may still be neither softened nor in any other way altered; and that if they are irregular in certain isolated parts of their surface, the parts which still remain attached to the bone are quite firm and polished. This is especially the case in that class of suppurations which occur coincidentally in several joints, and which we have already alluded to as sometimes accompanying phlebitis. In these cases, after a joint has been distended for many days with pus, all the evident change in the cartilage is that a portion seems as if it had been chipped out of it with some blunt instrument. The surface that is left, and all the rest of the cartilage is still firm, of its natural bluish-white colour, and intimately attached to the bone. Now, if pus had the least power of dissolving cartilage in the living body such facts as these could never be observed; the cartilage in such a supuration of a joint would be evenly thinned over its whole extent, and that which remained would be soft and loose and half dissolved, or flocculent and unable to bear the pressure of the finger; but such an appearance is in common inflammation of a joint never seen. Portions of cartilage are always entirely removed; and that which remains possesses a healthy aspect if not its normal connexions.

The theory of Mr. Key, which is in part adopted also by Mr. Adams, is far more ingenious and is founded on facts of more seeming authority, than this of solution by pus. An admirable criticism of it forms the greater part of the important appendix to the present edition of Sir B. Brodie's treatise. The theory is briefly this: When ulceration of the cartilage ensues as a result of synovial inflammation, the removal of its tissue is effected not by its own vessels but by those of a very vascular process of synovial membrane which grows over the border of the cartilage, or by those of a similarly vascular membrane produced from the synovial membrane and receiving its vessels from it, which spreads over the free surfaces of the cartilages and absorbs them.†

* On the Ulcerative Process in Joints, *Medico-Chirurgical Transactions*. Vol. xviii.

† We cannot but remark the singular mode of expression which Mr. Key, reasoning straightway from facts to final causes, adopts in reference to this process; speaking of it as a curative effort of nature, whose object is in these diseases of the joints to produce, as a natural cure, ankylosis. This may be surgically speaking a cure, because

The fact upon which this theory is founded is that in many cases where the synovial surface of a cartilage is grooved, or as Sir B. Brodie happily expresses it, *chiselled* out by ulceration, the depression is found occupied by a process of membrane from its synovial lining, which has a very vascular and fringed border, like one of the "glands of Havers." This Mr. Key believes has absorbed the cartilage by a process analogous to that by which the removal of the sequestrum of cylindrical bones under necrosis takes place. Now the question of the absorption of dead bone is too long to be entered upon at length here; but we may observe that the experiments of Mr. Gulliver, supported as they are by many facts of constant occurrence, render it certain that a sequestrum separated from its vascular connexion is never in any degree absorbed by the surrounding vascular parts, but remains, as the loose fragments of fractures often do, unaltered for months and years. The same experiments render it very doubtful whether a dead portion of bone even still adhering to living bone, is ever lessened by the absorption of the vessels of another part; much less then is it probable that a living tissue, however slightly vascular, should be absorbed by the vessels of another adjacent tissue; nor do we know a single example in which it can be proved that the vessels of one living part or tissue have the smallest share in effecting the ulcerative removal of another. It is evident, therefore, that no imagined analogy to any of these other processes is deducible in favour of Mr. Key's view, for they are themselves, if not opposed to his idea, at least most ambiguous.

Again, it is clear that this assumed mode of ulceration by the action of a destroying growth from the synovial membrane cannot explain all cases; for in many there is no such growth; in many the cartilage is removed when it was opposed to another cartilaginous surface, and in these and in many more the ulceration occurs in a part of the articular surface to which no synovial growth could have access, as on the very centre of the patella, on the middle of the condyles, and on the head of the femur not near the ligamentum teres, on the middle of the head of the humerus, &c. From all these parts portions of cartilage are often found removed while that around them is healthy; so that it is evident that even in some of the cases in which the membranous process does exist, it could only have arrived at the ulcerated part by passing over the healthy surface. But in many of these cases of isolated ulceration, and indeed in the large majority, the synovial membrane has no processes growing from it at all. And it is not in the least probable but that in all these cases the process employed is essentially the same; a single case, therefore, in which a growth from the synovial membrane is not found, though the cartilage is absorbed on its synovial surface, would throw great doubt upon the theory; and when such cases are far from rare they must be fatal to it. They are so far from rare that we believe that many surgeons to whom the ulceration of the cartilages is a familiar appearance have never yet seen such processes from the synovial membrane as Mr. Key describes.

But still this vascular growth is sometimes seen exactly fitting into the patient does not die—yet we scarcely call it a cure, if from inflammation of his eyes a patient loses his sight; and vision is not more the function of the eye than motion is of a joint.

the cavity in that portion of the articular surface from which the cartilage is removed, and certainly to an imaginative mind it looks just as if it had been eating and growing on the food it derived from the edges of the hollow it has made; it looks like a worm in its bole. How then did it get there? To explain it the structure of the joints must be considered; they are cavities with firm and scarcely yielding walls, and they admit of no change of volume except with an inversely proportioned alteration in the quantity of their contents. If the cavity of a joint increase in size, more substance must pass into it to fill it; if it decrease in size something must pass out of it. They are in this respect exactly analogous to the cranium, into whose cavity, if the mass of the brain become smaller by atrophy or other loss of substance, more fluid must be and always is effused; if the brain become larger, fluid must pass out of the cranium (unless in children in whom the head can expand) and the brain is then found dry and without fluid either in its ventricles or membranes. There are cases of cerebral disease in which effects are observed exactly analogous to this growth of the synovial membrane into the joints. When, in consequence of an apoplectic effusion, an abscess or any other disorder in which a portion of the brain is destroyed, the volume of the contents of the cranium is lessened, inasmuch as the size of its cavity remains for the time unaltered, it is certain that either something must be added to the volume of the contents or that the volume of the cavity must be reduced. The contents of the cavity must exactly fill it or a vacuum would exist, which we need scarcely say is impossible. The subject is admirably illustrated by some of the cases of atrophy of the brain detailed by the late Dr. Sims, in his paper on that subject, in the 19th volume of the *Medico-Chirurgical Transactions*: "The chasm occasioned by the atrophied state of the brain," he says, "we observe to be sometimes filled up by serous fluid and by *deposits of bone on the skull*"—"the hypertrophy which takes place in the bones of the cranium is very frequently confined to the inner surface of the os frontis, in other cases it is more general." (p. 367.)

There can be no doubt that in the living body as in inorganic matter, if the size of an air-tight cavity be increased its contents must expand, or if not expansible must have something added to them to fill the cavity; or if the size of the contents of a cavity be diminished its walls must fall in. These are the simple principles on which when in the adult the brain grows larger the skull grows thinner; and when the brain becomes smaller the skull becomes thicker, or more fluid than natural is effused within it. To apply the same principles to the disease of the joints now under consideration; a portion of the synovial surface of an articular cartilage is removed by the ulcerative process of its own vessels; what is to fill the space thus produced in the cavity of the joint? In most cases, as in most of atrophy of the brain, fluid (either pus or synovia) is effused in increased quantity; but in some, as in some of atrophy of the brain, the surrounding tissues grow in and fill up the chasm. The process, or as it might be called the hypertrophy of the synovial membrane, is the exact analogue of the hypertrophy of the bones of the skull.

In this explanation nothing improbable is involved. It is assumed that the first change is the absorption of the cartilage, and that it may be

the first is certain because in some early examined cases it is the *only* change; by such an absorption a vacuum *must* be formed in the joint; and something *must* fill it up; that *something* is either fluid or an increased growth of synovial membrane or a newly-formed false membrane. We can indeed determine, if the part of the cartilage absorbed be known, what will be produced to fill its place; if the middle of the surface be ulcerated, fluid will be effused and no membrane produced; if the borders of the cartilage, then membrane grows into the cavity as fast as it is formed.

Thus much of the presumed explanations that have been offered of superficial ulceration of articular cartilages, to remove the apparent difficulty of their possessing too small a degree of vascularity to effect their own ulceration. Neither of them is free from far greater objections than those which they are intended to surmount.

The opinion is more commonly received and certainly more plausible that in the deep ulceration in which the cartilage is undermined from its connexion with the bone, the vascular granulations that grow into the hollow between them are the agents by which the absorption of the under surface of the cartilage is effected. But even against this view there are many objections; as the improbability of one tissue being absorbed by the vessels of another, and that healthy bone (for in some though not in most of these cases the bone is found unaltered) should produce granulations to do such irreparable mischief. It is certain that if the absorption of the under surface of the cartilage were the first step in the process granulations or something *must* grow from the head of the bone to fill up the cavity that would else be formed; and that the cartilage is first absorbed is rendered probable by the frequent coincidence of similar absorption on its opposite (synovial) surface, which we have already shown is often a primary affection.

The growth of granulations into such a cavity as the independent ulceration of the under surface of the cartilage would form is easily producible at will. If a hole be bored in a bone and the integuments replaced over it for a few days and then again raised, the hole will be found exactly filled by a growth of vascular granulations from the surface of the tissues that lay over it, just as in this case each little cavity on the under side of the cartilage is occupied by a growth of granulations from the subjacent bone.* The same action no doubt produces the granulations in both cases, as well as in all those in which granulations appear to be eating away the surface of an ulcerating tissue. In all the growth and increase of the granulations is secondary; a necessary consequence of the removal of adjacent tissues; they do not form the holes, but they grow into the holes that are formed by the tissue's own vessels.

The explanations, then, which the opponents of the independent morbid action of the cartilages have offered are at present insufficient to account for the phenomena. The removal of cartilage is fairly referrible only to a process of ulceration which is effected by its own power; and even in the absence of any other evidence for their vascularity this alone might be sufficient proof of it. When to the evidence which it affords we add the proof of the vascularity of their synovial surface,—the occa-

* This experiment was often performed by Du Hamel; see his *Papers on the Reproduction of Bone*, in *Mém. de l'Acad. des Sciences*, 1739-43.

sional appearance of vessels even in their substance when diseased—as in the case described by Mr. Mayo, (*Med.-Chir. Trans.*, vol. xix. p. 63,)—the occasional existence of a vascular false membrane passing from the synovial surface of one cartilage to that of another, without any communication with the walls of the joint, and without any apparent vascularity of the adjacent synovial surface,—the peculiarities which it presents in some other diseases,—the weakness of all the objections invented against its vascularity, and all the evident improbabilities of a non-vascular substance existing in such circumstances and presenting such phenomena as cartilage does,—by all these the vascularity and independent power of this tissue may be deemed sufficiently well established to be admitted in the explanation of the various forms of ulceration to which it is subject.

Of all that have been offered, the most concise and correct view of the ulcerations of cartilage is, in our opinion, that which Mr. Mayo has given in the paper just referred to; it is that which with very slight modification we should exactly adopt. There are three kinds of ulceration of articular cartilage: one in which it commences from the synovial surface; a second in which it commences at the surface next the bone—in both these the substance of the cartilage that remains is white, firm, and scarcely altered in appearance; in the third kind the remaining cartilage is softened, and converted into a fibrous or brush-like substance.

In the first class of cases, which may be called simple superficial ulceration, a portion of the surface of the cartilage looks as if it had been irregularly chipped or chiselled out; the surface thus exposed retains its natural colour, its firmness, and its polish. When a joint thus affected is opened it is scarcely imaginable that so little should be left by such formidable symptoms as those by which the disease was accompanied; for sometimes the redness of the synovial inflammation by which this form is accompanied has passed away, and nothing is found but the uneven cartilage. The most common cause of, or at least coincidence with, this kind of ulceration, is intense or long-continued inflammation of the synovial membrane, such as occurs in penetrating wounds of the joints, or in perforation from ulceration, or in the diffuse suppurations met with in phlebitis, or such as are sometimes produced by any of its common causes, as cold, &c. The effusion of pus into the joint is of course the result of the synovitis and is generally coincident with the ulceration of cartilage; but neither it nor the effusion of lymph are essential to this affection. Most commonly there is also coincident ulceration of the cartilage on the surface next the bone; but in some cases this is absent, and especially, we think, in those which accompany the general and apparently metastatic suppurations in phlebitis; in these the cartilage always retains its firm connexion to the bone, and can no more be torn from it than it can in health. When the ulceration in this form has extended down to the bone it exposes a healthy surface or one only increased in vascularity; and at any period one may determine that the ulceration commenced on the synovial aspect by observing that the exposed portion of bone is smaller than the area of the synovial aspect of the ulcer, so that the borders of the ulcer shelve downwards and inwards and have their thin edges more or less adherent to the bone that is exposed.

In the second kind of ulceration of articular cartilage, which may be called simple deep ulceration, the cartilage is at first removed only on the surface next the bone; it is undermined, and may be torn up from the osseous surface, or is even found hanging from it in pieces or lying loose in detached portions in the interior of the joint. Its under surface is rough and irregular, as if coarsely worm-eaten; often its whole thickness is perforated, and on opening the joint the cartilage looks riddled with little vascular masses of granulation projecting through its apertures from the bone beneath it.

The exposed surface of bone is highly vascular, and wherever the cartilage is separated is covered by prominent, soft, and very red granulations, which fit into the cavities on the under surface of the cartilage. It is probably to the pressure of the cartilage on these granulations that the exquisite pain which accompanies this form of the disease may be ascribed. The cartilage itself can scarcely be the source of pain of the character here felt; but the peculiar acuteness of the suffering produced by even lightly touching the granulations from bone is sufficiently well known.

In some cases the bone is evidently softened and atrophied or ulcerating; but in others it retains all its firmness and, except for an increase in its vascularity, might be deemed healthy. The latter is rarely found in diseased hip-joints; but more commonly in the most acute cases in which ulceration of the cartilages occurs in coincidence with intense synovitis: in chronic cases the disease commencing with a moderately acute inflammation of the synovial membrane, goes on to affect in turn all the tissues belonging and adjacent to the joint, or it commences in the cartilage, or simultaneously in the bone and cartilage. The ordinary cases of chronic diseased knee-joint are examples of the first kind; those of *morbus coxæ*, the scrofulous diseases of the hip-joint of young subjects, are instances of the second.

In all these forms of disease, however, and whatever be their origin, their ultimate effects if unchecked are disorder and functional destruction of every tissue. The effects of the first stages can be learnt only by the examination of extremely acute cases, and of those in which accidental death has prematurely placed them at our disposal, or by the careful comparison of a great number of advanced cases. From both the result is that the absorption of cartilage may be the initiative; but that in the majority of cases it is subsequent to inflammation of the synovial membrane.

The third form of ulceration of the cartilages in which its tissue is converted into a fibrous or brush-like substance is by far the rarest. It is a chronic disease, and appears to commence on the synovial surface, for the part of the cartilage next to the bone and the bone itself are usually healthy.

We had intended to consider the pathological changes observed in some other forms of diseases of the joints, and to point out the general deductions which the present state of knowledge permits to be drawn from them; but this article has already run its full length, and we must for the present leave the subject.

ART. III.

1. *Traité complet d'Anatomie Chirurgicale, Générale et Topographique, du Corps Humain.* Par ALF. A. L. M. VELPEAU, &c. Troisième Edition, entièrement refondue. Deux Tomes, avec Atlas.—Paris, 1837. 8vo, pp. 631, 717.
A complete Treatise on the Surgical Anatomy of the Human Body, both general and regional. By ALF. A. L. M. VELPEAU, &c. Third Edition, wholly revised. With an Atlas.—Paris, 1837.
2. *Traité d'Anatomie Chirurgicale et de Chirurgie Expérimentale.* Par J. F. MALGAIGNE, &c. Deux tomes.—Paris, 1838. 8vo, pp. 480, 664.
A Treatise on Surgical Anatomy and Experimental Surgery. By J. F. MALGAIGNE, &c.—Paris, 1838.

It is only within the last few years that surgical anatomy has become a subject of special consideration. The first works which clearly displayed the advantages to the surgeon of a practical acquaintance with the structure of the human body were confined to the description of certain restricted regions, which are especially interested in the performance of particular operations; among these the celebrated treatises of Sir A. Cooper and Scarpa on Hernia, and Langenbeck on the Perineum stand foremost. It is true that some works had been previously published under the designation of surgical anatomy, (for instance that written by John Palfin, which appeared in 1718,) but these were chiefly devoted to descriptive anatomy, and only contained a few detached surgical observations which were unconnected with the anatomical descriptions of the different organs. Sir A. Cooper's and Scarpa's works have been followed by many others, some of which have been confined to the description of individual parts only, while others have embraced the whole frame. In our own language we may particularly mention the work of Burns on the Head and Neck; the first part of a treatise on Surgical Anatomy, by Abraham Colles of Dublin; and Harrison's Monograph on the Arteries. Several manuals of surgical anatomy have been published in Germany, as those of Rosenthal and Bock; but it is in France that this branch of medical literature has been particularly cultivated, most of the complete systems of surgical anatomy being confined to the French language. The works of Blandin and Velpeau have both been long and favorably known. Some of these works have been accompanied by plates; and numerous separate collections of figures have been published illustrative of particular regions of the body, especially of those frequently concerned in surgical operations. Many of these are doubtless very valuable, though we cannot help thinking that the same objection partially applies to them as to anatomical plates generally, that they too frequently supersede the employment of actual dissection instead of merely being used to refresh the memory of the surgeon.

The proper object and limits of surgical anatomy are not very clearly laid down nor perhaps very generally well understood. The greater number of works on this subject have been strictly confined to the relative anatomy of particular organs or parts of the body—or to what is now generally called *regional anatomy*, the object of which is to point out the connexion and relations which subsist between different organs and

tissues in any particular region. The principal end of this kind of anatomy is to direct the knife of the operator; and it may be defined as consisting in a correct knowledge of the parts which an instrument will wound or meet with while traversing the body in any given direction. This was originally the sole design of surgical anatomy, but the limits of this study have been much enlarged within the last few years by the French writers, and are greatly extended in the works before us.

The treatise of M. Velpeau has been long before the public, and is very generally known in this country, and we only now place it at the head of the present article on account of the great additions and alterations which have been made in the last edition. When this work first appeared, in 1825, it was solely devoted to the anatomy of regions, but the author has now included many remarks on general anatomy and pathology; his aim being "to explain by the aid of anatomy the numerous points in pathology or surgery which are in any way connected with the appreciable state of organs." The zoologist, the painter or sculptor, the physician, and the physiologist, all require a knowledge of the structure of the human frame, but each needs a knowledge in some respects peculiar to himself. Thus the zoologist looks for the analogies of structure which exist between the organs of man and those of different animals; the painter and sculptor only study the peculiarities of external form; while the physician and physiologist are more particularly interested in the anatomy of the different internal organs or viscera, and in general anatomy or the structure of tissues, by means of a knowledge of which the functions performed by different organs may be elucidated. It is the aim of the surgeon to combine the greater part of this information with an intimate acquaintance with relative anatomy; for "in performing an operation," says M. Velpeau, "it is not sufficient to know the names of the organs which are in danger of being wounded, nor of those which ought to be avoided, the surgeon must also be acquainted with their depth from the surface, their exact connexions, the density and thickness of the layers which connect or separate them, and a thousand other points," which can only be learned by frequent and careful dissection.

M. Malgaigne has extended the scope of surgical anatomy still more widely; for besides general anatomy and pathology, he includes what he calls surgical physiology, and also experimental surgery, which comprehends such points of information as may be obtained by the performance of operations on living animals, as well as from experiments made on the human subject both alive and dead. "Surgery," says M. Malgaigne, "derives its materials from four principal sources: namely, from observation of the living, from the investigation of alterations of structure in the dead, from normal anatomy (acquaintance with healthy structure) applied to pathology, and lastly from experiments." (Preface, p. 1.) These different means of investigation, though concurring to the same end, the greater perfection of the science of surgery, have but little connexion with each other, and have therefore seldom if ever been embraced in the same work. Most treatises on practical surgery include many pathological observations, and numerous surgical remarks will be found in different anatomical works; but few include both anatomy, surgery, and pathology. Experimental surgery has never yet appeared in a distinct form, for though much valuable surgical information has undoubtedly

been derived from the performance of experiments on animals and also on man himself, (a fact so well known that it is needless to bring forward any particular illustrations,) this branch of study only exists in the form of scattered facts which are diffused through the various regions of medical science.

The endeavour of M. Maligne has been to collect materials from all the above sources, and to mould them into a single treatise, bringing the information derived from anatomy, pathology, experiments, &c., to bear on one common object—the advancement of practical surgery. His success in the accomplishment of this end we rather doubt; for, as might have been expected *a priori*, his work presents a heterogeneous mixture of various matters, the surgical application of many of which is to us difficult of discovery; some appearing solely to relate to general anatomy and others to physiology, &c. It contains, however, much valuable and original information, and an account of many new and interesting experiments. In the present article we shall not attempt to give any analysis of its contents, but shall only endeavour to select those points, both scientific and practical, which appear to possess most novelty, and compare them with the statements of Velpeau and some other writers.

M. Maligne enters at considerable length into the minute anatomy of the skin, the structure of which does not seem at present to be completely understood, though many researches have been made concerning it during the last few years.* We shall notice one or two instances in which the structure of the skin bears on surgical pathology and practice.

Boils. The seat of the painful affection denominated a boil or furuncle is not universally agreed upon. The dermis or true skin is generally described as being composed of a dense network of whitish fibres, crossing each other in various directions, on the under surface of which a great number of little fossæ or cells are situated between the fibres, each of which cells is filled with a mass of adipose tissue. As we approach the free surface of the skin the network of fibres becomes much more close, so that the external part presents no visible channels of communication with the areolæ or cells beneath, though communications do exist at the points at which the hairs, excretory ducts, &c. escape. These cutaneous areolæ filled with adipose substance, were stated by Dupuytren to be so, and are still commonly supposed to be the seat of boils. In consequence of the suppuration and swelling which occur in these affections the fibres of the skin become separated from one another, and a sieve-like appearance is produced, similar to that which may be obtained by macerating a piece of skin for some time in water. The openings of the excretory ducts, according to M. Maligne, become in this state very apparent, and give exit to the matter. In carbuncle, inflammation of a large number of these cells and adipose masses takes place at the same time. The circumscribed form of a boil and the violent nature of the inflammation which always leads to mortification of a portion of the cellular tissue, are partly owing to the fibrous and unyielding nature of the walls of the cells in which the inflammation arises; this produces strangulation and death of the parts concerned.

* See review of the works of Breschet and Gurlt on the Skin, in *Brit. and For. Med. Review*, Vol. II., p. 429.

Eichhorn* gives a very different description of the structure of the skin. He says that the dermis may be divided into three layers: the middle one of which is hollowed out into a number of little cells containing a watery fluid; he calls these cells lymphatic cavities; they are very minute, he having counted, he says, more than 200 in a square inch. M. Velpeau is of opinion that a boil may arise from the deposition of purulent matter in one or more of these small cells, and he considers that this disease principally differs from carbuncle in the former having its seat in the substance of the chorion, while the latter affects the adipose tissue in the areolæ on the under surface of the skin: this accounts, in his opinion, for the inflammation being much more circumscribed in one affection than the other. The great difficulty, according to M. Velpeau's theory, is to account for the masses of sloughy cellular tissue which are invariably met with in boils, no materials for their formation being found in these lymphatic cavities. M. Velpeau calls them simple lumps (*parcelles*) of concrete pus, but we are at a loss to know how the fluid matter (which he says is first deposited in the cells) can here become inspissated so as to form the tenacious stringy mass which forms the core of a boil.

When inflammation occurs on the inner surface of the skin, M. Velpeau has justly remarked that it has a tendency to spread towards the subcutaneous cellular tissue, where it may give rise to phlegmonous erysipelas. The spreading of the inflammation in this direction is doubtless the principal source of the swelling and tension in boil and carbuncle, a quantity of adhesive matter and serous fluid being deposited in the cellular structure beneath the skin, which thus becomes indurated and produces strangulation of a greater or less portion, which dies from want of nutrition.

The French pathologists make a distinction between the common or benign carbuncle, which they call *anthrax*, and the malignant or pestilential carbuncle, termed *charbon*, which is very similar in its nature to the malignant pustule. Dupuytren regarded the malignant carbuncle as essentially a gangrenous disease; the sloughing of the cellular tissue in this affection arising, according to him, from a peculiar kind of inflammation; while in simple anthrax, on the contrary, he considered it only to be occasioned by strangulation of the processes of cellular tissue extending into the structure of the true skin. M. Velpeau seems to be of opinion that subcutaneous inflammation occurs in malignant carbuncle but not in anthrax or simple boil, in which the inflammation, he says, is confined in the tissue of the skin itself. "Malignant pustule and 'charbon,'" he observes, "originate in the *cellulo-adipose* cavities of the skin, but they almost always extend after a short time, if not simultaneously, to the corresponding part of the subcutaneous tissue; besides which they differ essentially in their cause and nature from furuncle and anthrax." (Vol. i. p. 5.) Our author here confuses furuncle and anthrax together, but in a preceding passage he says "if anthrax differs from furuncle in many respects it is only in consequence of its being seated in the cellular tissue which fills the fossæ on the inner surface of the skin, and not in the substance of the chorion itself." (p. 4.) In both carbuncle and boil the unyielding tissue of the skin causes great irritation and difficulty in the passage of the matter to the surface, and clearly indicates that the most effectual plan of treatment in both of these affections

* Remarques sur l'Anatomie, etc. de la Peau, (Journal des Progrès, tom. vii., p. 82.)

(and one which is imperatively called for in carbuncle where the disease is extensive and produces great constitutional disturbance) is the formation of free incisions through the inflamed part, so as completely to divide the distended skin and to give exit to the matter and sloughs.

Cutaneous Wounds. The fibres composing the base of the dermis have been described as interlacing each other in various directions, so as to form an inextricable network; but it seems probable, from the result of some experiments, accidentally suggested in the first instance, that these fibres are arranged in a parallel manner, in a peculiar direction, the course of which varies in different situations. Dupuytren was first led to suspect this fact from observing that several wounds which had been inflicted with a sharp round instrument (*poinçon*) presented the appearance of a longitudinal slit similar to what would be produced by the blade of a penknife. Being struck with this circumstance he made a number of experiments on the dead subject to ascertain if a round instrument puncturing the skin constantly produced elongated wounds: he found that it did, and that the length of the wound varied with the depth to which the instrument was plunged. He also observed that the direction of the wounds was always the same in the same region of the body: thus, on the neck they were directed from above downwards, on the thorax parallel to the course of the ribs, &c.*

M. Malgaigne repeated these experiments with very similar results. He found, however, that the direction of the wounds will sometimes vary a little in the same region in different subjects. Thus, in the body of a female which was covered with a considerable quantity of fat, wounds made on the neck, the anterior part of the thorax, and the abdomen, had always a transverse direction: in a young male subject, on the contrary, wounds on the abdomen followed an oblique direction, corresponding to the fibres of the external oblique muscle; on the chest they ran parallel with the ribs; and on the anterior part of the neck they corresponded with the fibres of the sterno-mastoid muscles. M. Malgaigne says that he has sought in vain for any general law regulating the direction of the fibres of the skin, though he is of opinion that such a law will be discovered by further researches.

"In the skin the direction of the fibres often changes very abruptly. A vertical and transverse wound may be formed by the same instrument within a line of each other. In a few instances I have obtained triangular wounds from punctures with the same circular weapon: this occurred in those regions where the direction of the punctures was observed to change abruptly, and as far as I have been able to determine, this triangular form did not arise from the manner of introducing the instrument, but seemed to be due to the peculiar disposition of the fibres of the skin in particular spots." (Tom. i., p. 67, note.)

M. Malgaigne fancied that perhaps these facts might be applied to some practical uses in surgery: he thought it probable that the retraction of the skin in an operation would be greater from an incision made in a direction transverse to the supposed course of the fibres than in a line parallel with them; but experience has not supported these suppositions; for in a number of incisions which were made with every possible precaution in various situations, the gaping of the wounds appeared much the same in all cases in which the state of tension of the skin was the same.

* Dupuytren, *Traité des Blessures*, &c. tom. i., p. 61.

Whether the incisions which were made for the purpose of determining this point were practised on the dead or the living subject our author leaves us in ignorance; but if, as we presume, they were made on the former, it must be remembered that the contractile powers of the fibres of the skin would be in a great measure lost after death.

Though from the experiments of Dupuytren and Malgaigne it seems very probable that the fibres of the skin follow particular directions in particular situations, yet this structure at present rests merely on supposition: for neither of these authors nor any other observer that we are aware of, mentions that any peculiar or determinate direction of the fibres of the tissue constituting the base of the dermis, has been ever seen by the microscope.

Corns. It is still a point of some doubt whether the cuticle is continued into the sudorific and sebaceous ducts of the skin, as well as the sockets of the hairs. Eichhorn, Lauth, and Gurlt say that it is thus prolonged into the dermis in the form of sheaths; and Malgaigne is of the same opinion. The latter author thinks that these processes of cuticle dipping into the skin form the principal points of attachment between these two tissues. "Is it not," he says, "to a special thickening of these cuticular sheaths that the production of corns is owing—those excrescences of the epidermis which may be distinguished from all others by their possessing a slender root penetrating more or less deeply into the dermis? This is an idea which I have not seen expressed elsewhere, but which appears to me very probable." (Tom. i. p. 72.)

Topical relation of Nerves to Muscles. There is a great difference of opinion among anatomists and physiologists as to the place of entrance and the internal arrangement of nervous filaments in muscles. We shall not here enter into the subject of the mode of termination of the muscular nerves, as to whether the fibres anastomose at their extremities or remain distinct. This point, which has been particularly investigated by Prevost and Dumas, Rudolphi, Treviranus, Gottsche, Valentin, Emmert, Dr. Ernst Burdach, and others, has been already treated of at some length in a former Number of this Journal.* Though of considerable physiological interest, it is not of much practical utility. We shall at present confine ourselves to the enquiry respecting the most usual place of entrance, and the primary mode of distribution of nerves in muscles; as a knowledge of these points may be of some surgical importance.

M. Prevost and Dumas describe the trunks of the nerves and their first branches as penetrating between the muscular fasciculi in a tortuous course, the exact direction of which appears to be indifferent. Burdach says "to each individual muscle there goes in general only a single nervous stem. The nerve having entered the muscle, first runs downwards in it to some extent parallel with the muscular fibres."† Neither of these physiologists alludes to the particular part in any of the muscles which the nervous trunks enter. According to M. Lantenois,‡ the nerves which are distributed to the muscles of the limbs commonly penetrate their tissue at their superior or proximal extremities, and quickly divide into two principal branches. M. Velpeau adopts this opinion.

* See Vol. VI., p. 414.

† Beitrag zur Mikroskop. Anat. der Nerven., p. 54; and Brit. and For. Med. Rev. Vol. VI., p. 415.

‡ Thèse Inaug., Paris, 1826, No. 127.

"Each muscle," he says, "commonly receives one nervous cord of a certain size, which enters a little above the middle third, and immediately divides into two branches, one of which supplies the superior and the other the inferior part of the organ." (Vol. i., p. 61.) M. Chassaignac,* who paid particular attention to the nerves of the superior extremities, informs us—1, that each large muscle receives many nervous filaments, sometimes from the same trunk, and at other times from different branches; 2, that those muscles which are composed of several fasciculi of fibres, are supplied with distinct branches for each of such fasciculi, and if the different fleshy portions of the muscle are of unequal lengths, each of them receives nervous filaments which come off from the principal nervous trunk, at different corresponding heights; and 3, that every muscle terminating in several tendons but having a single fleshy belly receives several nervous filaments which generally correspond in number to its tendons.

With respect to the mode of entrance of the nervous filaments, M. Chassaignac says that every muscle receives its nerves by that surface which is next to the axis of the limb, and that most muscles are penetrated by their filaments in their superior fourth. M. Malgaigne has carefully investigated this subject for the purpose of determining whether the statements of M. Chassaignac are correct, and he has arrived at different conclusions with respect to the general place of entrance of the nerves of the limbs. He says that the nerves of the arm always penetrate the muscles below their superior fourth, and in many cases as low down as the base of the superior third or even lower. In the thigh, however, he has found some of the muscles penetrated by their nerves within their superior fourth; thus in a sartorius measuring 21 inches in length, taking the fleshy and tendinous portions together, the nerve entered at the distance of four inches from its proximal attachment or origin. M. Malgaigne found that it was impossible to establish any general rules by which the precise point of insertion of the nerves in muscles may be known, for this seems (as might be supposed from the discrepancy of the foregoing statements) to vary considerably in different individuals. The only conclusions which he arrived at were—that nerves scarcely ever penetrate the muscles of the limbs in either their superior or inferior fourth: the knowledge of this fact, if fully established, may be of some surgical value; though we fear, notwithstanding the contrary opinion of M. Malgaigne, that the point of entrance is too variable ever to become of practical importance to the surgeon.

"Suppose, for example," says our author, "that a sabre-cut on the inner side of the thigh transversely divides the *gracilis* muscle three inches from its pubic end, the upper part will here be paralyzed, and convulsions, if they should come on, will only affect its inferior part. If the division, however, take place an inch lower, the phenomena will be exactly reversed. If the nervous trunk supplying the muscle shall have been itself divided the muscle will be entirely paralyzed." (Vol. i., p. 101.)

The division of the nerves supplying a muscle was ascertained by Bichat to have no influence over its contractile power; but Velpeau was not aware of this fact, for he states that the muscles of the thigh undergo a much greater degree of retraction when amputation is performed below the point of insertion of their nerves, than when above it. Malgaigne

* *Compte rendu des Travaux de la Société Anat.* 1832.

explains the fact of the retraction of the muscles being greater when divided at a distance from their origin by the greater length of their fibres.

Relation of Blood-vessels and Muscles. Muscles are abundantly supplied with both arteries and veins. It has been observed that the latter are furnished with very few valves, and that they may be filled with injection, impelled from the nervous trunks towards the small branches. It is generally considered that the necessity for the presence of valves is obviated by the assistance which the muscular contractions afford to the propulsion of the blood through the veins traversing the substance of the muscles. Bichat founded this opinion principally on the well-known fact that the stream of blood escapes more quickly from the arm of a patient during venesection when he contracts the muscles of the limb than when they remain in a state of relaxation. M. Malgaigne says that this circumstance must be referred to quite a different cause.

"The contractions of muscles," he remarks, "render their tissue more close, and prevent the veins from admitting their ordinary quantity of blood; it is in consequence of this that it flows into the superficial veins. During any violent effort all the veins on the surface of the body become swelled, the capillaries even carry red blood, whence it is evident that the circulation is impeded. This excessive repletion frequently renewed is certainly one powerful cause of dilatation and irritation in the superficial veins, especially in those in which the blood likewise stagnates by its own weight; thus *varices* are much more common in men than women, and in the legs than anywhere else. The muscular veins which are emptied by the least effort are on the contrary very rarely affected with *varices*." (Tom. i., p. 99.)

We are inclined to think that this explanation is correct; for though the venous circulation is undoubtedly aided by the action of the muscles in those vessels which are furnished with numerous valves, yet this cause cannot operate on the muscular veins, which we have already stated to be nearly destitute of valves, and in which therefore intermitting pressure will force the current of blood backwards as well as forwards. M. Velpeau, when speaking of the contrivances by which the large arterial trunks are prevented from being compressed by the contractions of muscles, remarks that "it is less by pressure on the trunk than by momentary obliteration of the arterial branches which are distributed through their substance, that the muscles force the blood towards the internal cavities or the surface of the body, when they contract with a certain degree of force." (Tom. i., p. 60.) This observation of M. Velpeau, as to the compression of the arterial branches by muscular contraction, coincides in a great measure with some of the doctrines of Mr. Wardrop* respecting the influence exerted by the muscles over the circulation, and which he brings forward as something new. Mr. Wardrop, however, considers that though the flow of blood is impeded through the arteries by muscular contraction, it is propelled onwards, on the contrary, in the veins. He makes no distinction, however, between the superficial and deep-seated, though as the latter are destitute of valves they will be quite as much under the influence of pressure as the arteries. We agree with M. Malgaigne that the effect of muscular contraction is to force the blood into the cutaneous veins, and in this way we must account for the more ready flow of

* On Diseases of the Heart. See Brit. and For. Med. Rev., Vol. V., p. 146.

blood from the arm when a solid body is firmly grasped in the hand during venesection.

Rupture of Muscles and Tendons. Living muscular fibres have generally been considered to possess a greater degree of strength and resistance than tendinous fibres; experiments and facts, however, show that this is only partially true. M. Malgaigne thinks that the tenacity depends upon the fibres being in a state of contraction: for when a violent degree of extension is applied to a limb, the muscles of which are in a state of relaxation or stretched and elongated, as in reducing a dislocation by means of pulleys, or when a limb is torn off by machinery—he says it will be found that the muscles generally give way through their fleshy portions, and that their tendons will bear a much greater degree of force without breaking. On the contrary, any sudden force applied while a muscle is in a state of powerful contraction will snap the tendons and not the fleshy fibres. It is in this way that rupture of the tendo-achillis takes place.

This explanation is only partly applicable, for it has been found that the relative strength between different muscles and their tendons varies greatly, so that in some muscles the fleshy fibres will rupture, while in others the tendons will break upon the application of the same degree and kind of force.

Ruptured or divided tendons are generally a long while in uniting, the slowness of cicatrization being principally owing to the difficulty which is always met with in keeping the separated portions in contact. Velpeau says that when the contact is perfect, union mostly takes place very readily.* Tendons possess but a feeble degree of vitality, being usually described by anatomists as destitute of visible vessels and nerves.† In consequence of this low state of organization, they may be cut or wounded without pain and without much risk of producing inflammation, so that Velpeau remarks that a suture may be passed through them with perfect security.

"The suture," he says, "the only means of keeping the ends in contact, which modern surgeons have banished from practice, does not deserve the contempt into which it has fallen. The pretended dangers which it was supposed liable to give rise to in such cases are purely imaginary: traversing a solid tissue possessing but little irritability it unites the divided parts with as much force as is required." (Vol. i., p. 73.)

M. Velpeau does not say whether he has himself put this in practice; there is no doubt that it might be advantageously resorted to in cases where there is a difficulty in keeping the divided ends of a tendon in contact, and when it is desirable that this should be done: an event which can rarely occur, as laying bare a tendon for the sole purpose of applying a ligature seems scarcely in any case desirable. The only cases in which it might be supposed to be beneficial are those in which tendons have been completely divided by a cutting instrument, and where the retraction of the muscles prevents the separated extremities from being brought into contact. This sometimes occurs in cases in which the

* M. Stromeyer has found union to have commenced as early as the fifth day, in cases where the tendons have been surrounded by a sheath, which has kept the divided ends in contact.

† Mr. Paget has lately succeeded in injecting the vessels of tendons. See *Medical Gazette*, July, 1839; and *Brit. and For. Med. Rev.*, No. XVI., p. 594.

extensor tendons of the fingers have been divided on the back of the hand.

We have stated that when the ends of a divided tendon are separated by a considerable interval, the process of union is some time before it is completed, for a portion of new substance has to be generated. The changes by which cicatrization is effected in these cases have been minutely studied by Von Ammon, Bouvier, and others, and have been before briefly alluded to by us in former Numbers.* As, however, they are of considerable practical importance, we shall once more describe them, in the words of M. Malgaigne, to whom M. Bouvier communicated the results of his experiments before he published them, and who carefully examined his preparations.

"The tendo-achillis having been divided in several dogs: on the second or third day after the cellular sheath of the tendon was found thickened and formed a kind of canal, which was complete except at the place by which the knife had entered. The inner surface of this canal was of a bright red colour, as well as the divided ends of the tendon. In some cases the canal was empty, in others filled with coagulated blood. By the ninth day the sheath had become very much thickened, and already formed a very firm uniting medium between the separated ends of the tendon; the canal was now much contracted, and the aperture by which the knife had entered was obliterated. From the twelfth to the eighteenth day the new substance presented the appearance of a cord of the same size as the tendon itself, and which had begun to take on a fibrous structure. By the twenty-fourth day the canal had entirely disappeared; the intervening cord was manifestly fibrous, but of a grayish colour, and very different in appearance from the tendinous tissue to which it solidly adhered. In many cases the new substance was more gray towards the centre and was considerably swelled at its extremities. M. Bouvier thought at first that this swelling was owing to some expansion of the tendinous tissue itself, but on making a longitudinal section of one of his preparations we found that the tendon was scarcely increased in thickness, almost the whole of the tumour being formed by a circular thickening of the sheath, which enveloped each extremity of the tendon, in the same manner as the provisional callus envelopes the broken ends of a bone in a fracture. These swellings were not always met with, and they seem to disappear in the process of time; so that the phenomena accompanying this union of tendons are very analogous to those attending the formation of osseous callus, and they may be referred to the same laws." (Tom. i., p. 126.)

These experiments are very interesting; but M. Malgaigne has not described the appearances presented by the new or intermediate substance beyond the 24th day. At a later period does the grayish colour disappear, and does the connecting medium present the characteristics of genuine tendinous structures? M. Bouvier says not: the cicatrix of the tendon of a horse after two months was still of a grayish colour; that of a dog after an interval of six months, he says, presented a very distinct and separate structure, but he does not mention whether it retained any vestiges of the gray colour.† Müller says "the substance which reunites divided tendons has not, it seems, the fibrous shining aspect of tendons but is more cartilaginous." From these observations we conclude that the gray colour which probably depends on the degree of vascularity of the new tissue ultimately disappears, though the structure of the tissue remains different.

* Brit. and For. Med. Rev., Vol. V., p. 550; Vol. VII., p. 240.

† Bull. de l'Académie de Médecine, tom. ii., p. 703.

Fracture. When treating of the interesting subject of the mode of union of bones, which has excited so much attention among physiologists and surgeons, M. Malgaigne remarks that the theory of Dupuytren, so generally admitted, respecting the formation of a provisional callus, before the true uniting medium or permanent callus is deposited between the ends of the bones, is only admissible in a certain number of cases, as in the hollow cylindrical bones of adult animals. M. Malgaigne says that in young subjects the union of fractured bones takes place immediately, and without the formation of any provisional callus; and that in fractures of epiphyses and short bones, in which, from the want of a medullary cavity, there can be no deposition of callus in that situation, it is also frequently absent externally, and may always be prevented from forming by external pressure. M. Velpeau seems to entertain nearly the same views, considering that union takes place in different bones in different ways, on account of the difference of arrangement which exists between the vessels by which they are supplied with blood. One order of vessels traverses the periosteum and penetrates into the interior of the osseous tissue; another set forms a fine network between the periosteum and the bone, and principally nourishes the external osseous layers.

"The provisional callus described by Dupuytren and others," he says, "appears to be entirely dependent on these latter vessels, while the definitive callus, the cellular cicatrization of the fractured extremities, must be referred principally to the former set. It is this circumstance which renders the work of consolidation far from the same in all bones. When the vascular network of the periosteum predominates, as in the shafts of the long bones which are furnished with a large medullary canal, the provisional callus generally forms in the manner described by authors. In the spongy bones where the first-mentioned vessels predominate, the ideas of Bardenave and Bichat* are applicable rather than those of Dupuytren. Lastly, if (as in the instances published by M. Gaillard† and as I have myself observed a great number of times in the fibula and tibia, and the radius and ulna,) the ferule admitted by the disciples of Dupuytren is absent when the coaptation and immobility of the fragments are exactly maintained, it follows that when the work of reparation which is undertaken by the vessels belonging to the osseous tissue itself is uninterrupted, the superficial vessels are not required." (Vol. i. p. 148.)

According to these views of M. Velpeau, which coincide with those of Mr. Syme, deduced from his own experiments, (see our Eighth Vol., p. 285,) the periosteum and its vessels must play the sole part in the formation of the provisional callus: it is, however, now most generally admitted that all the vessels of the part, those of the bone, periosteum, and adjacent structures, seem to be equally concerned in the process. It is remarkable, considering the number of experiments which have been made on the mode of union of bones by so many and such able men, that there should still be so much obscurity remaining. The greater number of observations have been made, however, on adult animals, and on the cylindrical bones; and it is by no means improbable that the short spongy bones may unite without the formation of any provisional callus: the same may also be the case in young animals whose bones possess a much greater degree of vascularity; but we cannot agree with M. Velpeau

* These anatomists make the union of fractures analogous to that of the soft parts by means of granulation.

† *Revue Méd.*, 1830, tom. i., p. 67.

in thinking that union takes place in these cases by means of granulation. Why is it not effected by means of coagulating lymph, which uniting the broken fragments and becoming organized may be finally converted into bone? There is room for the institution of fresh experiments on this subject; and they should be particularly directed to the observation of the mode of union of the short and flat bones, as very few researches have been made respecting these parts of the osseous system. In several experiments which we have ourselves instituted on rabbits, and in which the bone selected has been the scapula, we have found union to be effected by means of provisional callus deposited in considerable quantity along the line of fraction, and reparation has been effected in this manner in cases where there has been no displacement of the fractured portions of bone.*

Structure of Arteries. The arteries are generally described as consisting of three coats: an external, middle, and internal. M. Malgaigne says, however, that this statement is only correct when applied to the pulmonary arteries, as in those belonging to the aortic system four may be distinguished. The external coats of all the arteries is formed of condensed cellular tissue, the fibres of which are closely interwoven, and are generally described as becoming more firmly connected to each other (rendering the tunic more dense) as it approaches the middle coat, to which it is closely connected. Lasône,† with whom M. Malgaigne seems to agree, says that this structure is only met with in the adult male subject, for that in women and children the structure of the cellular coat is equally loose throughout. Some anatomists, particularly the older ones, describe an intermediate tunic between the external and middle ones, which they denominate nervous or tendinous: Lasône remarks that this exists in the ox though not in the human subject, and thus the older anatomists were perhaps led into error by deriving their knowledge of the human body from the dissection of animals.‡

The second or middle tunic consists of fibres running in a transverse direction, which are described as not of sufficient length to form perfect rings round the whole circumference of the vessel, but as being short and rather oblique in their direction, and interlacing at their extremities between the neighbouring fibres.§ M. Malgaigne differs from this view, and describes the fibres as running in a spiral direction, each fibre coiling several times round the artery. He says that having made a small perpendicular incision through the middle coat of the aorta (the cellular tunic having been first carefully removed), he unrolled with great care those fibres which had been divided by the knife, and thus he succeeded in obtaining some of them several inches in length, which made two or three turns round the artery, mounting in an ascending spiral direction. This statement may be perfectly correct, and yet not interfere with the

* Mr. B. Cooper has been lately occupied with the subject of the reparation of bone, and he has given the results of some of his experiments in the Fourth Number of the Guy's Hospital Reports, which have been noticed by us in our Fourth Volume. His experiments, like those of his predecessors, have been confined to the long bones.

† "Sur la Structure des Artères," Mém. de l'Acad. des Sciences, 1756.

‡ We can find no mention of this peculiarity of structure in the works of Cuvier, Meckel, or other comparative anatomists.

§ Cyclopedia of Anatomy, vol. i., p. 222.

truth of the previous description ; for in all probability those portions of the tunic which M. Malgaigne unrolled were not single fibres but bundles of fibres, consisting of short oblique filaments interlaced together. Our author does not mention having examined them with the microscope. The spiral disposition of the tissue composing the middle coat of arteries has been previously described ; Beclard alludes to it, though he says that he has never himself observed it.

Malgaigne adheres to the opinion of Haller and Hunter, that the middle coat of arteries is muscular. He admits that a vast difference undoubtedly exists between its texture and that of the sartorius or any of the larger muscles, but that scarcely any distinction will be observed between its fibres and those of the muscles of the external ear. A still closer resemblance, it has been said, may be observed between the fibrous arterial coat and some of the involuntary muscles, the muscular coat of the intestines for instance.* M. Malgaigne supports his views on this subject with considerable ingenuity ; but, as we think that there are few anatomists who will agree with him at the present day, we shall not enter into his arguments. M. Malgaigne describes a distinct tunic as existing between the fibrous and inner coat of arteries : he denominates it *sub-serous*. Haller mentioned it under the name of *tunica cellulosa interior*, and by most modern anatomists it is considered as forming only the outer layer of the inner coat. M. Malgaigne says that it only exists in the aortic system of arteries, the pulmonary artery and its branches being unprovided with it. He says that its appearance varies according to the size of the arteries in which it is examined. In the aorta it is white, thick, opaque, and fragile, does not present any appearance of fibres, but may be detached in layers, several of which seem to exist. In the smaller arteries it becomes soft and cellular, losing its whiteness and brittleness, and is thrown into wrinkles by the contractions of the fibrous coat. It is more difficult to distinguish this sub-serous coat in the arteries of women and children than in men. Our author considers that the large arteries owe the power of preserving their cylindrical form, and of presenting an open mouth when cut across, in a great measure, to the solidity of this tunic. He says that it does not exist in the pulmonary artery, and it is therefore that this collapses much more on division than the aorta and its large branches. It is in this tunic that the steatomatous, cartilaginous, and osseous patches so often met with in the aorta and its branches are generally considered to be deposited : Haller remarked this circumstance. By those authors who do not admit of the existence of this fourth tunic these morbid deposits are described as being seated in the outer layers of the inner coat, or between that and the middle coat. M. Malgaigne says that it is remarkable that the pulmonary artery appears never to be the seat of these deposits : Bichat was struck with this circumstance, and endeavoured to attribute it to some difference in the nature of the lining membrane ; but Malgaigne considers that the real cause will be found in the difference of anatomical structure which we have mentioned, namely, the absence of the sub-serous coat. According to a recent observer,† the cartilaginous patches met with on the inner surface of arteries must

* Skey, Philos. Trans., 1837.

† M. Bizot in Mém. de la Soc. méd. d'Osér.; and in Brit. and For. Med. Review, Vol. VI., p. 46.

not be confounded in situation with the steatomatous or osseous deposits which also occur; for he says that the former are not contained at all beneath the lining membrane of the arteries, but are developed on the free surface and in the tissue of the inner coat itself. Mr. Mayo also makes the same statement.* If the view of these latter pathologists is correct we must look for some other peculiarity in the structure of the pulmonary artery, besides the absence of the sub-serous coat, which exempts it from this morbid alteration. M. Louis states that this exemption of the pulmonary artery from these morbid deposits must be attributed to the properties of the blood circulating through it; for in some cases, where, from congenital malformation, there has been a mixture of the blood of the two sides of the heart, this vessel has been found diseased.

The inner coat of arteries is smooth and polished, and in appearance very closely resembles the serous membranes, particularly the arachnoid membrane of the brain: when examined with the microscope it has been said that its inner surface may be seen to be furnished with a number of villi, giving it a velvet-like appearance. This, according to Cruveilhier,† is owing to a mucous layer which is spread over the interior of the vessel in the form of an extremely fine pellicle. This surface secretes an unctuous fluid, which lubricates the interior of the vessel and enables the blood to pass smoothly through it without adhering to its sides. M. Velpeau says that both the villous surface and its secretion inevitably disappear as soon as this tunic becomes the seat of the least morbid alteration; so that if these characters are met with after death we may affirm that the arteries have not been inflamed. If this statement may be depended upon we shall have a certain test by which inflammatory congestion of the arteries may be distinguished from simple staining of the lining membrane by the imbibition of blood after death. M. Velpeau says that the lining membrane of the arteries possesses all the attributes of an inorganic layer.

"It is a sort of varnish of horny or epidermic matter, which exhibits no traces of vessels or nerves. It is thus altogether insusceptible of primary inflammation, and all that has been said of diffused arteritis, either acute or chronic, may be referred to pure supposition. The more or less deep red tints which are so often observed, are the phenomena of imbibition, which depends on the qualities of the blood, the kind of death, and the state of the atmosphere." (Vol. i., p. 80.)

M. Velpeau thus agrees with Bizot,‡ Trousseau,§ Louis, and Andral as to the pathological value of red coloration of the internal surface of the arteries. With respect to his views as to the inorganic nature of the lining membrane, we confess that we are rather sceptical. The observations of Eulenberg|| have shown that there exists a fine layer of epithelium composed of roundish or rhomboidal scales, which lines the whole common internal membrane of the blood-vessels. The villi described by Cruveilhier have not been observed by other microscopic anatomists.

Compression of the Brain. Taking leave of general anatomy, we shall next draw the reader's attention to a subject which must be placed under the head of experimental surgery; and on which M. Malgaigne has been making some interesting researches—namely, the effect which is produced on the brain by compression, particularly that compression which is

* Outlines of Pathology, p. 448. † Dict. de Méd et de Chir. Pratiq. Art. *Artère*.
‡ Ibid. § Arch. gén. de Méd. t. 14. || Henle ueber die Ausbreitung des Epithelium.

caused by the presence of effused blood, or other fluid within the cranium, lessening its cavity.

M. Malgaigne is of opinion that in most cases a much greater degree of importance is attached to this lesion than it deserves; and he thinks that the bad symptoms which are so frequently referred to compression simply are rather owing to some injury of the brain itself, such as concussion, occasioned by the same accident as that which has given rise to the effusion of blood. It is scarcely possible to conceive any rupture of the vessels of the dura mater or pia mater taking place from a blow (not fracturing the skull), without the brain being at the same time seriously shaken. For the purpose of ascertaining directly the effect of pressure on the brain, numerous experiments have been made on living animals.

M. Serres trepanned a dog over the track of the superior longitudinal sinus, and after making an opening with the bistoury through the sinus, closed the external aperture in the skull, so that none of the effused blood should escape externally. The animal being let loose after this proceeding, ran about as if nothing had happened, and continued without any bad symptoms for three hours, at the expiration of which time it was killed, when a very large clot of blood was found in the great fissure between the two hemispheres, and another of less extent on the surface of the left hemisphere of the brain. This experiment was repeated by M. Serres upon other dogs of different ages, upon rabbits, pigeons, &c., and always with the same results.*

It has been objected to these experiments that the degree of compression could not be accurately known, in consequence of the pressure of the cranium being partially removed by the operation of trepanning. M. Flourens therefore repeated them on young pigeons, in whom the skull was so soft that he was enabled to penetrate the sinuses of the brain with a sharp instrument without removing any portion of the bone. He found that under these circumstances the effusion of blood produced loss of sight, convulsions, and sometimes death. He also found that the removal of a portion of the skull instantly relieved these symptoms.†

Neither of these sets of experiments possesses much value, because the relative quantity of effused fluid, in regard to the capacity of the cranium, was not at all ascertained, and this, as we shall presently show, is a point of great importance, the dangerous effects of pressure appearing to depend entirely upon the degree to which it is exerted. M. Malgaigne relates an experiment to exemplify this point, which he refers to Sir A. Cooper, but we have not been able to find it recorded in the writings of that celebrated surgeon. The experiment was as follows: the skull of a dog having been trepanned, direct pressure was made on the brain through the opening with the finger. At first the animal seemed scarcely to feel it, but on increasing the pressure the dog showed symptoms of pain and irritation, and endeavoured to escape. The pressure being gradually increased more and more, the dog became comatose, and fell down; the pressure was continued for five or six minutes, and then the finger was removed, upon which the animal revived, and soon walked about as well as before the experiment.

* *Annuaire Medico-Chirur. des Hôpitaux*, 1819, p. 246.

† *Archives gén. de Médecine*, tom. xxv., p. 133.

For the purpose of ascertaining what quantity of fluid might be effused within the cranium without producing serious symptoms, M. Malgaigne instituted some fresh experiments. He first injected half an ounce of warm water into the cranium of a small dog (it is not stated whether the fluid was effused between the cranium and dura mater, or between that membrane and the brain). The animal was immediately seized with convulsions, followed by profound coma, which continued till a free opening was made into the skull. The quantity of fluid injected in this instance seemed but small, but it was very considerable when compared with the size of the cranium, the cavity of which when measured was only capable of containing two ounces of water. M. Malgaigne next took a rabbit, and having made an aperture in the skull with a bodkin, sufficiently large to admit the tube of an Anel's syringe, he injected about a drachm of tepid water, which instantly produced convulsions and death. It was afterwards ascertained that the cranium would only hold two drachms and a half of fluid. In the third experiment he took a rabbit whose cranium would contain 170 grains of water, and he injected into it, between the dura mater and the brain, fifteen grains of fluid; this produced slight anxiety of respiration, which, however, only remained for a few seconds. At the end of six minutes he injected thirty grains more, which produced no other effect than slight diminution of vivacity. Another thirty grains being injected after an interval of a few minutes, the animal appeared stunned, and the respiration became laborious; it completely recovered, however, in less than half a minute. A fourth injection of another thirty grains was made after a short interval; and M. Malgaigne was proceeding to inject more, when a convulsion came on, and the rabbit fell down in a state of insensibility. At the end of half an hour it slightly recovered, when a fifth injection of thirty grains of liquid was made, which brought on a violent convulsion; the animal sprung up more than a foot into the air, and on falling down continued to be affected with slight convulsions. M. Malgaigne says that he now injected another forty-five grains of water, upon which the respiration immediately ceased, and the eyes seemed starting out of the head; the heart, however, continued to beat for a long time. On examination of the body after death, only a few drops of fluid were found in the skull, but a considerable quantity escaped from the spinal canal; this was not measured, though M. Malgaigne thinks that it was much below the quantity injected. In this experiment great care was taken that none of the fluid should escape from the orifice by which it was introduced, and it actually required the injection of a greater quantity of liquid than the cranium itself was capable of containing to kill the animal. It must be taken into account, however, that it was introduced gradually, and at several distinct periods, and also that it was injected between the brain and dura mater, so that the fluid could penetrate into the spinal canal: M. Malgaigne concludes that great part of the fluid must have been absorbed during the performance of the experiment, which altogether occupied an hour.

M. Malgaigne deduces from these and other experiments that compression of the brain, without any lesion or injury to its substance, is only dangerous when it exceeds certain limits; and states it as his conviction that "the doctrine held by the 'Academy of Surgery' upon the

necessity of trephining, in cases of compression of the brain after wounds of the head (without depression of bone), is an old and deplorable error, which even causes numerous victims at the present day." (T. i., p. 317.)

The capacity of the cranium of an adult man has been estimated at about forty-four ounces, and of a woman at from thirty-eight to forty ounces. Sir A. Cooper says that the greatest quantity of blood that he has ever found effused after death was about three ounces; and such a quantity as this is not at all likely to be extravasated within the skull from a blow without rupture of some considerable artery, as the middle meningeal, which, Malgaigne says, can scarcely take place without fracture. "Such an effusion as this will only reduce the brain of a man one fifteenth in volume, and it has been supposed that such a slight compression may give rise to coma, paralysis, and death!"

This opinion that pressure on the brain, unless carried to a very considerable degree, does not produce any important consequences when uncomplicated by other injuries, is supported by facts recorded and observations made by many authors. Mr. Abernethy thought that the recovery of many cases which he had met with of fracture of the cranium (in which there was depression of a portion of bone) without the performance of any operation, proves that at all events a slight degree of pressure may not derange the functions of the brain for a limited time after its application, and probably never; for all those patients whom he had an opportunity of knowing for any length of time after such an accident as the above, continued as well as if nothing of the kind had happened to them.* Sir B. Brodie says "in whatever way compression of the brain operates, so as to disturb the functions of that organ, it is difficult to explain wherefore the symptoms to which it gives rise are sometimes slight, and at other times urgent: symptoms, not to be accounted for by any differences in the quantity of pressure, nor in the particular part of the brain affected by it. At the same time it is undoubtedly true that for the most part the patient suffers more from an extensive than from a slight depression, more from a large than a small extravasation."†

M. Malgaigne would account for the differences between the symptoms in these cases by the presence of some lesion of the brain itself in some of the patients and not in others. At any rate the facts adduced (and they might be almost indefinitely increased) ought to make surgeons very cautious in the use of the trephine; the application of which instrument might, with advantage, be almost exclusively limited to those cases in which there is evident depression of bone, accompanied with symptoms of compression.

Affections of the Vertebral Column. The degree of mobility of the vertebral column chiefly depends on the structure and disposition of the intervertebral fibro-cartilages. The thicker these are in proportion to the thickness of the bodies of the vertebræ, and the less the size of the articulating surfaces, the more mobile will any part of the spine be. The intervertebral substances are said by M. Malgaigne not to be at all liable to ossification, but according to him they are frequently affected with

* Abernethy's Surgical Works, vol. ii., p. 4, &c.

† Med.-Chir. Trans., vol. xiv., p. 344.

other morbid alterations, which have not, he thinks, been sufficiently attended to.

"Sometimes these alterations do not occasion any change in the direction of the vertebral column, because nature causes a growth from the edges of the bodies of the neighbouring vertebræ, which thus become connected together by their circumference, and prevent any sinking of the fibro-cartilages, and consequent deviation from the natural position of the spine. In most cases, however, sinking takes place; the bodies of the two neighbouring vertebræ approach each other in front, while their spinous processes separate behind and form an unnatural projection. This is by no means a rare variety of Pott's disease." (Tom. ii., p. 17.)

According to our author, those lateral curvatures of the spine, commonly referred to rickets, are principally owing to some morbid alteration of the intervertebral layers, in consequence of which the vertebræ deviate from their straight position, the bodies approximating more closely on one side than on the other. M. Malgaigne thinks that this affection depends on a general want of nutrition of that side of the body on which the sinking takes place, and supposes that this inequality of nutrition may be either original and congenital or acquired. In support of this theory he refers to the researches of M. Maisonnabe, who has observed that more than half of the subjects affected with lateral curvature of the spine have been affected during the first years of life with convulsive movements and great nervous excitability; and that two thirds of them have one eye smaller than the other, or one side of the face; and in many instances the whole of one side of the body less perfectly developed than the opposite.* If there is any defect of nutrition in these cases, the vertebræ themselves should participate in the disease; and Malgaigne allows that they do so in some degree, though to a much less extent, than the fibro-cartilages; the latter giving way more readily under the pressure of the weight of the body. M. Malgaigne does not altogether reject the agency of rickets in producing curvatures of the spine; he only restricts its influence to a much smaller number of cases than has generally been done. According to M. Maisonnabe rickets only bear a proportion to other causes of one to three; while alteration of the intervertebral substance, without any affection of the bones, will be met with in two out of every three cases; lastly, in 134 dissections of distorted spine, made by the same observer, two cases only were met with in which disease was confined to the ligaments of the spine, which fact clearly shows the erroneous nature of the views entertained by Dr. Harrison and others.

To show the extent to which the intervertebral substances become altered in thickness, in cases of lateral curvature, our author details an examination of a distorted spine, made by M. Cruveilhier, in which there were two opposite lateral curvatures, one in the dorsal region, with its concavity towards the left, and the other in the lumbar region, with its concavity to the right. In this case from the third dorsal vertebra to the twelfth exclusively, the bodies of the eight bones comprised in the curvature measured seventy-one lines on the concave side, and seventy-seven lines on the convex, making a difference of six lines or a twelfth. The nine fibro-cartilages measured thirteen lines and a half on the concave side of the curvature, and twenty-five lines on the convex side or nearly

* Maisonnabe, *Journal Clinique sur les Difformités*, tom. i.

double. The inferior curvature was formed by the last dorsal and the five lumbar vertebræ. The height of these six bones on the concave side was fifty-one lines, on the convex seventy-two lines, the difference amounting to twenty-one lines, or nearly a third. The intervertebral substances included in this curvature measured twelve lines and a half on the concave side and thirty on the convex, making a difference of about three fifths.* M. Serres has published an analogous case to the above, which proves that a very great sinking of the fibro-cartilages and also of the bones takes place in cases of extensive lateral curvature of the spine. The vertebræ were here found to have diminished much more in thickness in the lumbar than the dorsal region; which Cruveilhier endeavours to explain by the support which the ribs afford to the vertebræ in the latter situation.

In the observations which he has made on this subject, our author has particularly called attention to the extent to which the intervertebral substances become altered in shape in cases of curvature of the spine; a fact which, though previously observed by other authors, had not been very particularly attended to. He has quite failed, however, in substantiating his first proposition, that this sinking of the intervertebral layers is owing to some morbid alteration of their tissue; for he describes no changes of structure whatever; and as to the idea that there has been some congenital defect of nutrition of one side of the body, in these cases, if true it is probable that the vascular and osseous systems would be affected in a greater degree than the intervertebral substances; or at least their imperfect development would have a much greater influence in causing deformity of the spine. We are inclined to conclude with Mr. John Shaw, that the alteration in shape of the intervertebral substances must be principally referred to mechanical causes.

M. Malgaigne forcibly shows the absurdity of the system of using extension in cases of curvature of the spine.

"Suppose you apply the method of parallel extension to straighten a curvature of the spine, in which the difference between the convex and the concave sides is thirty-eight lines; if this is to be restored by elongation of the fibro-cartilages they must be stretched from thirteen lines to fifty lines, that is, four times their length. Still this is not all, for the efforts of extension act at the same time on the convex side, which will certainly be also somewhat elongated, and thus the distance will be augmented, to which the other side must be extended before the spine regain its natural form. And in short, when you have given to the fibro-cartilages fifty lines of height where they ought to possess only thirty, can it be supposed that the vertebræ will be firmly connected together by the ligaments which must also have been stretched to so great an extent?" (T. ii., p. 20.)

A curvature of the spine in one direction produces almost inevitably a second one in an opposite direction, this last being caused entirely by the action of the muscles, which act unequally for the purpose of preserving the equilibrium of the trunk. It is a point of some interest to determine, in a case where two curvatures exist, which of them is primary and which secondary. Most authors consider that distortion generally commences in the lumbar region;† but Malgaigne says that the superior is almost always the primitive curvature, the articulating sur-

* *Bulletins de la Société Anatomique.*

† See John Shaw on the Spine, p. 53; Lawrence, *Med. Gaz.*, vol. vi., p. 613; Sir C. Bell, *Med. Gaz.*, vol. v. p. 234.

vol. x. no. xx.

faces on the bodies of the dorsal vertebræ being smaller than those in any other part of the column. The whole of the upper part of the body in this case will incline towards one side, and a secondary curvature in an inverse direction in the cervical region will not be a sufficient counterpoise: it is necessary that there should be another curvature in the lumbar region, to restore the equilibrium. But in case the primitive curvature be seated in the lumbar region, will it not be counterbalanced by a secondary dorsal curvature? M. Malgaigne says that though this may undoubtedly take place sometimes, yet in all the cases which he has investigated, the equilibrium has first been established by a secondary curvature below the first, giving rise to twisting of the pelvis and unnatural projection of the hip.

"It results from the preceding observations that lumbar curvatures may exist without distortion of the dorsal region of the spine, though such cases are very rare, in consequence of primitive deviations in the lumbar region bring themselves very unfrequent. If I may be allowed to deduce any general conclusion from the facts which I have observed, I should say that primitive dorsal curvatures arise most frequently from alteration of the cartilages, and those in the lumbar region from rickets. The former principally show themselves between the ages of seven and fourteen years, and the latter in early infancy."* (Tom. ii. p. 22.)

Lateral curvatures of the spine almost exclusively arise in young persons, a circumstance which may be explained by the mode of development of the bones. At the time of birth each vertebra will be found to consist of three bony portions, a central nucleus which forms the body, and two lateral pieces which constitute the ring. The complete ossification of the vertebræ takes place at a very late period: up to about the age of eighteen years the articulating surfaces of the body are separated from the intervertebral substance by a layer of cartilage. At this period a bony layer, or epiphysis, forms immediately in contact with the intervertebral substance, but still remains distinct from the body of the bone, so that maceration separates the body of the vertebræ into three pieces. From twenty-five to thirty years of age these epiphyses become definitely united with the bone. From the age of seven to fifteen years the intervertebral substances and the cartilage to which they are united, form so large a part of the spinal column that deviations from the natural position may be produced by much slighter causes than in later years, and may also be much more easily remedied, on account of the great degree of flexibility of the spine.

Perineum. The surgical interest which belongs to this region has rendered it the frequent object of attention to the anatomist, and the descriptions of it have become so numerous and complicated, that it will be necessary to say a few words regarding its structure, so as to reconcile the opinions of different authors, before we enter on the practical applications which we find in the works before us.

Malgaigne describes the following structures in the perineum proceeding from the skin towards the bladder:

* Dr. Jules Guérin, in a Memoir lately read before the Academy of Sciences on the general etiology of lateral curvatures of the spine, states it as his opinion that the greater number of these deviations arise from what he calls active muscular retraction, which is produced by some affection of the nerves or other causes, and may in some instances be cured by dividing the affected muscle. (*Comptes rendus Hebdom., &c.* 22 Sep., 1839; and *Brit. and For. Med. Rev.* No. XVI., p. 557.)

- 1st. The skin, to which is attached a thin layer of adipose tissue.
- 2d. The first layer of fascia superficialis, also connected with a considerable quantity of fat.
- 3d. The deep layer of fascia superficialis, separated by a very small quantity of adipose tissue from
- 4th. The superficial aponeurosis of the perineum.
- 5th. The first layer of muscles, consisting of the erector penis (ischio-cavernosus), the accelerator urinæ (bulbo-cavernosus), and the transversus perinei; which are contained between the superficial and middle aponeurosis.
- 6th. The middle aponeurosis, between the layers of which the transverse arteries of the perineum are contained.
- 7th. The deep layer of muscles, consisting of the levator ani on the sides and posterior part, and Wilson's muscles in front.
- 8th. The deep aponeurosis or fascia of the perineum, which is double at its front part, being continuous with what our author calls the *pubio-prostatic* ligaments, which are generally denominated the anterior ligaments of the bladder. This deep perineal fascia is only separated from the bladder by the prostate gland, and by cellular and frequently adipose tissue, which is deposited by its sides.

M. Velpeau describes six layers of fat, and fascia between the skin and muscles of the perineum, which correspond to the three layers of Malgaigne. Dupuytren, in his posthumous memoir on Lithotomy (reviewed in our Second Volume), makes five layers, three membranous and two adipose, which correspond very nearly with those mentioned by Malgaigne. He first describes a thin layer of elastic cellular tissue, as existing beneath the skin, which contains no fat in its composition, though a layer of adipose substance is found beneath it of variable thickness. This corresponds to Malgaigne's first layer of fascia superficialis, the only difference being that one author describes the adipose tissue as forming part of the layer, and the other as being distinct from it. Dupuytren next mentions a cellulo-fibrous membrane, which, he says, is continuous with the superficial fascia of the thighs and with the dartos, and which is attached to the rami of the ischia. This must be the same as Malgaigne's deep layer of fascia superficialis; a layer of fat separates this from another cellulo-fibrous membrane (Malgaigne's superficial aponeurosis), which envelopes the root of the corpus cavernosum, the bulb, and the muscles of the perineum. This membrane is also attached to the ischia, and more firmly than the preceding, of which it is only considered by Dupuytren as forming a part, the fascia splitting into two layers. Dupuytren follows the generality of anatomists in only describing a single deep fascia of the perineum, consisting, however, of two layers (Malgaigne's middle and deep aponeurosis), which arise from the margin of the pelvis and proceed towards the median line, along with the levator ani, which they inclose between them; they embrace the rectum, the neck of the bladder, and prostate, and form the boundary between the pelvis and perineum; in front they form the anterior ligaments of the bladder. This structure has been variously described by different authors, by some it has been denominated the triangular ligament, a term which can only properly be applied to the most anterior part, which is attached to the rami and inferior surface of the symphysis pubis inclosing the subpubic ligament, and through which the urethra passes. The upper layer of this

membrane is continuous with the pelvic fascia, and Velpeau describes the whole deep perineal fascia as only a portion of that membrane which lines the pelvis, and he gives it the name of the recto-vesical aponeurosis. The pelvic fascia divides into two layers at the line of origin of the levator ani muscle, one of which layers is continued on the inner and the other on the outer surface of the muscle; the inner one is continued into the prostate and front of the bladder. It seems to us perfectly immaterial whether the strong cellulo-fibrous tissue, which closes the inferior aperture of the pelvis, be designated a portion of pelvic fascia or a distinct tissue, so that its attachments and situation be clearly understood.

Any one who carefully dissects the perineum will find that it is almost impossible to distinguish the different layers above referred to (especially those described as superficial to the muscles), or rather that he may make almost as many as he likes. The fact is that beneath the skin of the perineum a quantity (which varies in different subjects) of adipose tissue exists, through which a number of cellular fibres are interspersed, which are firmly attached to the rami of the ischia and pubis; this, which constitutes the different layers of superficial fascia and aponeurosis, is continuous with the dartos and the superficial fascia of the abdomen. The most external part only is continuous with the fascia superficialis of the thighs, the deeper layers being bounded by the bony margin of the inferior outlet of the pelvis at the posterior part of the perineum.

It has been thought that an acquaintance with these different layers might afford some practical information as to the course which fluids, such as urine, effused in different parts of the perineum would take: thus when the bladder is ruptured beyond the prostate, the urine will be effused into the sub-peritoneal cellular tissue, where it may extend without meeting with any obstacle into the pelvis, the iliac and lumbar regions; and the patient will inevitably sink under the extensive gangrenous inflammation which must ensue. An opening in the prostatic portion of the urethra, which extends through the fibrous envelope of the gland, may either allow the urine to escape into the same tissue as in the preceding case (should the portion of pelvic fascia reflected over the gland be ruptured), or into the sheath of the levator ani. Rupture of the membranous portion will also give rise to effusion into the sheath of the levator ani; in fact between the two portions of the deep fascia, which will dissect the rectum and also produce great and dangerous inflammation. If the rupture takes place in the bulb, or at the point of junction of the bulb and membranous portion, immediately in front of the triangular ligament, the urine should be effused beneath the superficial aponeurosis (of Malgaigne), and will find its way forwards all round the penis, but not into the scrotum. If the superficial aponeurosis gives way, or the urethra is ruptured in front of this membrane, the fluid will effuse itself into the dartos, and may extend into the groins and front of the abdomen, also backwards round the anus.

These are the anatomical deductions, but they are not completely borne out by practical observation; for the fibrous barriers which have been described are not complete, and freely allow the urine to pass from one part of the perineum to another; thus Malgaigne has remarked that when the effusion takes place beneath the superficial aponeurosis, it soon infiltrates through this membrane and invades the scrotum.

"I may here," he says, "allude to a very curious phenomenon, that it is very rare to see the urine penetrate, in the first instance, by the side of the anus, though when the patient is lying down this is the most dependent part of the perineum. M. Blandin explains this by reference to the structure and attachments of the fascia; but without absolutely denying the resistance of this aponeurosis, I must say that it is very feeble and almost cellular in many subjects; that it evidently allows the urine to transude through its anterior part into the scrotum; and lastly, I must call attention to the course which urine takes when it is effused in the subcutaneous fascia. 'Almost always,' says M. Blandin, 'we see the scrotum become sphacelated, the testicles and the penis denuded, and the skin of the anterior wall of the abdomen undermined by the urine, before a single drop of this liquid has penetrated by the side of the anus.' As after the scrotum has become infiltrated, the aponeurosis can offer no further resistance, we must look for some other cause which encourages infiltration in an anterior direction and prevents it from taking place posteriorly. This cause appears to me to be a peculiar laxity and permeability of the cellular tissue of the scrotum, and of the layers which proceed from this region towards the abdomen: while in the neighbourhood of the anus, the close connexions of the sphincter with the surrounding layers is an almost invincible obstacle to infiltration in the median line, and at the sides the adipose tissue with its closed cells does not afford a free passage for the admission of a foreign fluid. It is thus that in infiltration of the scrotum (unfortunately produced during the injection of a hydrocele), the fluid never descends towards the anus for all its depending position; and it is also for this reason that after the lateral operation for lithotomy, any effusion which may either occur, in consequence of the wound being badly dressed, or having too narrow an external opening, scarcely ever takes place at the back, but principally in the front part of the perineum; this is especially the case if the incision has extended into the cellular tissue of the scrotum; wherefore it is very important to hold up this part so that it shall not be liable to be wounded by the knife." (Tom. ii. p. 308.)

Rupture of the bladder or urethra, leading to effusion of urine, may take place in several ways, as from external violence from a blow, excessive distention of the bladder, or from an abscess in the neighbourhood of the urethra breaking into this canal: in all these cases there will be no external outlet to the effused fluid. But extravasation may occur in consequence of an external wound penetrating the urethra or bladder, produced either accidentally or by the instrument of the surgeon. In these cases, if the wound is very narrow no effusion will generally occur; this has been observed in paracentesis of the bladder. Infiltration also is not likely to take place if the wound is large, and has a free external aperture. This latter fact should always be borne in mind in performing the different operations for lithotomy. "Provided that the external wound," says M. Malgaigne, "is large and free there is no fear of effusion. It is therefore a good precept to give the incision in lateral operations a triangular form, so that it keeps augmenting in width from the neck of the bladder to the integuments. It is also a bad mode of dressing to apply *charpie* to the wound, or even to bring together the edges of the incision by placing the thighs in contact. The knees ought to be held apart and the wound left open." (p. 309.) In our Fourth Volume (p. 539) we have briefly noticed a paper by Mr. Chrichton, of Dundee, on the expediency of healing the wound in lithotomy by the first intention; but we do not think that the advantages which are held out by his method are sufficiently great to counterbalance the dangers to which it may give rise.

M. Malgaigne next enters into a discussion on the advantages or disadvantages of a free incision through the prostate, and the dangers of

effusion of urine to which it may give rise—questions on which there is great diversity of opinion among modern surgeons. The two circumstances which are dreaded by the generality of surgeons are, on the one hand, bruising and laceration of the prostate and surrounding parts by the exertion of too much force in extraction of the stone, in consequence of the incision through the prostate and neck of the bladder being too limited; and, on the other hand, inflammation excited by the effusion of urine into the loose cellular tissue surrounding the prostate, spreading through the pelvis and to the peritoneum; which effusion has arisen from the incision having been carried completely through the prostate gland into the surrounding textures. It was principally with the view of obviating both these difficulties, and to make a large incision without transgressing the proper limits, that Baron Dupuytren instituted his new operation of cutting through both sides of the neck of the bladder and prostate with a double *lithotome caché*. Of the extent of his success in accomplishing these objects we have already stated our opinion in the review of his splendid work in our Second Volume; and to this we refer the reader: we return to the point which we have here to discuss, namely, the reality of the danger which has been apprehended by transgressing the limits of the substance of the prostate gland. The prostate, in an adult, presents the following dimensions, according to the admeasurement of M. Senn,* viz. 13 lines of height in the vertical direction, and 19 lines of width in the centre of its transverse diameter. Radii diverging from the urethra to the circumference of the gland have the following length: from the urethra directly downwards 7 to 8 lines, from the urethra directly outwards in a transverse direction about 9 lines, and from the urethra downwards and outwards from 10 to 11 lines. An incision in the last direction, which is the one followed in most of the operations for lithotomy in this country, would only admit a calculus of 33 lines in circumference. It is, however, well known that stones vastly exceeding this size have been safely extracted in numberless instances; we must therefore seek elsewhere for some explanation of this fact. In the first place, then, it must be taken into account that the prostatic tissue is capable of great dilatation without any laceration or bruising being produced. Deschamps† made a number of experiments on this power of dilatation possessed by the prostate, from which he calculated that in an adult an incision of six lines in length will suffice for the extraction of a calculus of fourteen or fifteen lines in diameter; that a stone of fifteen to twenty lines may be extracted without any *considerable laceration* through an incision of eight lines, and so on. M. Malgaigne is of opinion that these observations of Deschamps may scarcely be depended on; for, in the first place, his experiments were made on the dead subject, in whom the power of distension was much less than we have here stated, and he only supposes that the elasticity and dilatability will be much greater in the prostate in the living state from its analogy with other tissues, and also from the fact of stones having been successfully extracted of a much larger size than could ever have been drawn through any incision in the prostate of a dead person without great laceration. In the next place it must be borne in mind that “he has never once

* Referred to by Malgaigne, and probably taken from his work, *Parallèle de la Taille*, which we have not, however, been able to refer to.

† *Traité de la Taille*, tom. iii., p. 125.

verified by dissection after death the fact that there has been no laceration nor disorganization of the parts in these cases where large stones have been extracted." The larger the incision in the prostate is, the less power of dilatation will remain, according to M. Malgaigne, as the only part which can then expand under the distension is the portion of tissue which remains between the limits of the incision and the surface of the gland (the fibrous capsule being but little extensible), and this thin layer will be then very likely to give way. "I regard it," he says, "as one of the greatest dangers of the bilateral operation (Dupuytren's) that the prostate is liable to be torn at two opposite points, so that the anterior half may be completely severed from the posterior." (Tom. ii., p. 318.) When a small opening is made in the prostate the gland alone is not in danger of being bruised and lacerated, in the endeavour to extract the stone, but the bladder is also dragged forwards by the forceps, torn from its connexions, and contused about the neck.

"There is but one way, in my opinion," says Malgaigne, "to render the lateral operation for the stone less dangerous, and this is to divide the prostate freely, on one side only, entirely through, cutting the body of the bladder and the surrounding cellular tissue if the size of the calculus requires it; in fact, to make such a free aperture for the passage of the stone that the wound will remain an *incision*, and not be complicated with contusions and lacerations. Forced dilatation, however slow it may be, is wrong. With regard to the fears of urinary effusion, the success of the operation when performed above the pubis is sufficient to make us easy on this head. The essential point is, that the external wound be sufficiently large to open a free passage for the fluid. It seems to me to be an advantage to make an incision to a greater or less extent on the right side of the raphe, so that the cut on the left side need not extend so near to the tuberosity of the ischium. An *external bilateral* incision, and an *extensive but unilateral* incision through the prostate is, in a few words, the proceeding which I recommend." (Tom. ii., p. 319.)

Malgaigne's opinion is directly opposed to that of many of the most celebrated writers on lithotomy. Scarpa, Dupuytren, Brodie, Stanley, Liston, and others, think that the greatest dangers are to be apprehended from too free an incision of the prostate and neck of the bladder, infiltration of urine into the pelvis being thus liable to be occasioned. Sir B. Brodie and Mr. Stanley consider the plan of making a second incision in the right side of the prostate, in cases where the stone is very large, preferable to the extension of the cut in the left side. Mr. Liston and Mr. Key recommend, in certain cases where a large opening is required, the introduction of a bluntish gorget, such as that used by the late Mr. Martineau of Norwich, for the purpose of enlarging the incision which has been first made by the knife. The gland is thus torn through without (so Mr. Key says) being bruised, and the incision is thus enlarged as far as the deep fascia, while this membrane remains uninjured. Mr. Liston expresses himself so strongly with regard to the danger of carrying the incision through the prostate too far that we shall close the view of this side of the question in his words: "The internal incision," he says, "must be very limited indeed; it should certainly not extend beyond seven lines from the urethra outwards and downwards, the less that is cut the greater will be the patient's safety. The object in following that method is not to interfere with the reflexion of the ileo-vesical or pelvic fascia from the sides of that cavity over the base of the gland and side of the bladder. If this natural boundary between the

external and internal cellular tissue is broken up there is scarcely a possibility of preventing infiltration of urine, which *must almost certainly prove fatal*."^{*}

Cheselden, Desault, John Bell, Langenbeck, and Klein (one of the most experienced operators in Germany), take the same view of the subject as M. Malgaigne; and as of the same opinion may be added Mr. Samuel Cooper, who states in his Dictionary that he does not think that the apprehension of effusion of urine, sloughing, &c., sufficiently well founded to make it advisable for surgeons to relinquish the plan of making a complete division of the side of the prostate gland, and a limited one in the neck of the bladder. When effusion does occur, he thinks that it is from the external incision being too small. He also says that Sir A. Cooper has stated to him in conversation that it is his opinion that the chances of effusion from a free incision are much less than have been apprehended.

In taking a review of these conflicting opinions it appears to us that it has not been sufficiently proved by dissection that the cause of death in unsuccessful cases is generally gangrene from effusion of urine. Mr. Key says† that in all the cases which he examined there was suppurative inflammation of the reticular texture surrounding the bladder. This we are disposed to consider as more likely to arise from force used in extracting the stone through a narrow aperture (dragging forward the prostate and neck of the bladder from their connexions) than from urine effused into the cavity of the pelvis, which would occasion gangrenous and not simply suppurative inflammation. A very free incision may be made through the prostate gland without cutting the pelvic fascia, but we do not think that this can be well accomplished by means of the lithotome cache (the instrument used by M. Malgaigne and the generality of French surgeons) or the gorget, it being impossible to vary the direction of the wound during the formation of the incision with these instruments. With the knife, however, the incision may be carried through the widest part of the prostate and even extended beyond that organ, without entering the sub-peritoneal tissue, the knife being carried first downwards and outwards and then almost directly downwards, and brought out below that part of the gland to which the pelvic fascia adheres in its passage from the levator ani to the neck of the bladder. By this mode of operating a double purpose will be gained; a free incision will be formed, and thus bruising and laceration of the prostate avoided; while the risk (great or small) of effusion in the sub-peritoneal tissue will be avoided. After a careful investigation of this subject we are obliged to come to the conclusion that though much has been written and many opinions brought forward, little is still known of the immediate causes which occasion mischief in many unsuccessful cases; and we would recommend surgeons carefully to examine all cases that may come under their notice, in which death occurs, chiefly with the view of ascertaining what the extent and direction of the wound has been in the prostate and neck of the bladder; as this may throw some light on the question whether the incision has been carried too far, or whether the parts have been bruised and lacerated.

* Liston's Practical Surgery.

† On the Section of the Prostate Gland.

ART. IV.

Ueber den Einfluss der verschiedenen Gewerbe auf den Gesundheitszustand und die Mortalität der Künstler und Handwerker in den Blüthenjahren, &c. Von Dr. C. H. FUCHS.

A Statistical Memoir on the Influence of Various Professions on the Health and Mortality of Mechanics and Artisans in the prime of life; founded on the Tables of the Institution for Sick Mechanics in Würzburg from 1786 to 1834. By Dr. C. H. FUCHS, Professor of Medicine in Wurtzburg.—Berlin, 1835. 8vo.

PROFESSIONS in medical statistics may be considered certain determined combinations of external circumstances to which classes of men are exposed. Their influence is much more powerful and obvious in India, where they are hereditary, than in Europe; yet several professions in Europe have a remarkable effect in modifying the extent of sickness and death to which their members are liable. Before this full effect can be determined, extended series of observations, made by different individuals, must be collected; and the observations must embrace all essential facts, capable, like other facts in physical science, of being compared. To determine the relative health of any profession or class of men, and the deleterious influence of any circumstance in which they may be placed, the facts required are simple and few; but it is very rare that they can all be obtained or at least are all furnished by writers. In the first instance it is necessary to ascertain the number of individuals in each profession between the ages of 10-20, 20-30, &c., and then the total cases of disease, the average number constantly sick or the days of sickness, and the deaths in a determined time; from which data the annual diseases and deaths in 1000, and the average proportion of sick at all ages may be deduced. The sicktime and mortality in an assumed unit of lifetime thus becomes a determined quantity, which may be compared with any other quantity. To give an example: in the Island of Corfu* the average force of the British troops was 1974·5 during the six years 1816-21; equivalent to 11,847 ($1974\cdot5 \times 6$) years of life, 620 of which were years of sickness. The total number of cases treated amounted to 14,098. Whence it is found by direct proportion that in a year, 1000 soldiers living suffered 1190 attacks of sickness; that 52 of them were on an average constantly ill, and that 27 died. Of 1000 cases treated, 23 terminated fatally. A table in which these results were compared with those presented by other classes of men, would constitute a law of health for professions: it would teach the medical practitioner how many patients in a known population he may expect to attend; the general on how many effective men he may count in a campaign; the government how the labouring, manufacturing, agricultural, and higher classes are affected by political or economical measures. The sick-clubs and self-supporting dispensaries can only be firmly established by a knowledge of the quantity of sickness in the class they embrace; and if they enter every individual, distinguishing the age on their books, they will soon be in possession of a mass of useful facts.

The observations of Professor Fuchs were collected from the reports

* Hennen's Medical Topography of the Mediterranean. We have not been fortunate enough to meet with all these data in any other work foreign or English. This article was written before the appearance of the army medical reports.

of a Trades' Institution in Würzburg, to which each workman employed contributed weekly, in order to obtain a certain sum in sickness. These reports, published since 1788 distinguish the contributions of each trade; the deaths and attacks of sickness occurring in each trade have been distinguished from the first: and from these contributions and payments the learned Professor has been enabled to ascertain that since the foundation of the society in 1786 (49 years), the average number of contributions has been 1186; the same as if 58,125 members had lived and been occupied in their respective arts one year in Würzburg: 275 cases of sickness and 9 deaths occurred on an average annually; for the total attacks of sickness in 49 years amounted to 13,268; the deaths to 445. Of 10,000 contributors 2282 fell sick and 76 died yearly; and of 10,000 cases treated 327 (1 in 29·8) ended fatally. The value and defect of Professor Fuchs's method of enquiry are sufficiently obvious; but we shall compare it with what was said before to impress the right method more forcibly on future observers.

Professions.	Mean Age.	In 1000 living, the ANNUAL			Deaths in 1000 cases of sickness.
		Causes of Disease.	Number constantly sick.	Deaths	
Soldiers, &c. (in Corfu).	Nearly 26	1190	52·34	27·4	23·05
Artisans, &c. (in Würzburg).	16-35	228·2		7·6	32·10

The ages of neither class were certainly known; and this table only shows the attacks of sickness and deaths at the ages specified; the attacks of sickness are however probably the same at all ages between 10-70. A material defect in the German Professor's researches, it will be perceived, is the omission of the average proportion of sickness: investigated in the friendly societies of Great Britain by Dr. Price and the Highland Society, a defect which the data already before him will probably supply. It is almost unnecessary to remark that the excessive mortality and sickness of the soldiers is in part owing to the climate and fevers of the Mediterranean. The mortality and sickness of soldiers in times of peace is in their native climate greatly above the average; of the English infantry 18 in a thousand die annually, while the mortality of the entire population is only 10 in a thousand at the corresponding age. The mortality of the Würzburg artisans is apparently low; Dr. Fuchs states that the ages of the different classes were nearly the same, on an average between 15 and 35 years, and this may be fairly brought within the narrower mean of 20-30; at which period of life the mortality in Carlisle was 7·54 per 1000, differing to a trifling extent from 7·60. With Dr. Fuchs we are disposed to place considerable reliance on this general result, although the body of artisans in the society were to a certain extent selected; and we subjoin for comparison the deaths in 1000 at the same age in England and Wales, in Belgium, and in Sweden:

England and Wales.	Belgium.	Sweden.	Würzburg.	Carlisle.
10·1	9·1	8·9	7·6	7·5

The proportion of 32·7 deaths in 10,000 cases treated, the Professor

thinks highly favorable; but on what grounds we do not know. Nearly the same mortality (33·4) has been observed among the sick of the British troops in Bengal;* and in Corfu, only 230 died in 10,000 treated. At the same time the attacks of sickness suffered by 1000 persons in Würzburg, Corfu, and Bengal, were in the proportion of 228 : 1190 : 1713.

The mean mortality of the Würzburg artisans, expressed in parts of 10,000, being 76; the mean frequency of sickness, 2282; when the same operation has been repeated for each profession, on a sufficient number of individuals, their relative *mortality* and what Professor Fuchs has called their *morbidity* may be determined by comparison with the mean standard.

Before examining the professions separately, it is necessary to observe that: 1. The institution, and consequently the calculations, only embrace the incorporated trades; day labourers, hackney coachmen, and some others are consequently excluded. 2. That only journeymen and apprentices belong to the institution. And this is so far for the advantage of the calculation, as the sick are nearly of the same age (15-35); besides, for obvious reasons, a profession exercises its baneful influence far more intensely on journeymen and apprentices than on their masters, who often only superintend without working at their business, and so avoid its discomforts and dangers. 3. Formerly several trades, for example, watchmakers and gunsmiths, carpenters and slaters, &c. formed one united company, and were placed together in the accounts. Professor Fuchs had no means of separating these associated trades, and was himself compelled to combine several of the smaller allied trades, in order to obtain more probable results. 4. Members having syphilitic diseases, and, up to the year 1828, also itch, were not entered on the books.

The second and third columns of the following tables, showing the total deaths and diseases of each profession, were calculated from the payments made in the 49 years; but the contributors belonging to each profession were only known from 1818 to 1834; and the numbers in the tables were obtained by first ascertaining the relation of the sick to the contributors during these 17 years, and calculating from the relation so obtained the number of contributors in the earlier period. For example, of 920 weavers who contributed between 1818 and 1834, exactly 269 had an attack of sickness; and, as during the 49 years 480 of the weavers fell ill, the following proportion gives the total number of weavers who had contributed, $269 : 920 :: 480 : 1642$; which last sum is entered in the first column of the table.

We purposely withhold the arrangement of these 54 trades in the elaborate table of Professor Fuchs, according to their greater or less mortality and morbidity, and all the Professor's reasonings on their relative salubrity. Professor Fuchs is apparently ignorant or forgetful of the well-established physiological fact that the fluctuations of mortality between 15 and 35 are limited to nearly 7-20 in 1000 of those who remain in their native climate, or he would not reason seriously with the great anomalies of the fifth column before his eyes. These anomalies are principally due to the paucity of observations, which may be sufficiently augmented if proper returns were obtained from all similar institutions; on this account the

* Burke on the Mortality of Troops in India, 1826-32. Edinb. Journal, No. 109.

paper before us deserves attention. It is one of the numerous series of observations which we hope to collect in this Journal, from which our readers, or perhaps ourselves at some future time, may deduce rational, well-founded generalizations. It may, however, be observed, that in this arrangement and in that which follows, those classes in which the morbidity exceeds 2282, the mortality, 76, are considered unhealthy; on the contrary, those professions are considered salubrious in which the proportions fall below the average.

The influence of a profession on health is the result of several appreciable agents, to determine the exact value of which is the next step in the enquiry. For this purpose Dr. Fuchs has grouped all the professions in the table according to the locality in which they are carried on; the temperature and moisture connected with their exercise; the materials employed; the muscular force required; the position and necessary movements of the body; the aliment insured to their followers; the amount of wages; their influence on the education and the state of mind of their members. This has the further advantage of increasing the number of facts in each category, and diminishing the chance of error from differences of age. The first column shows the extent of the observations or the number of yearly contributors in the group; the second the attack of sickness in 10,000 persons living one year; the third, the annual deaths in 10,000; and the fourth the deaths in 10,000 cases treated. It is right to observe that the morbidity is diminished disproportionably in some professions, where the contributors were well off, and resorted less frequently than others to the institution; all the deaths were recorded. To catch the eye more readily, an * has been affixed where the mortality and morbidity were above, a † where they were below the average; the * therefore indicates unhealthy professions when over the column of morbidity and mortality.

INFLUENCE OF LOCALITY.	Total Contributors.	Morbidity.	Mortality.	Relative Mortality.
<i>Professions carried on (1) in the Open Air.</i>	5622	†2138	*99	465
Thatchers, fishermen, sailors, gardeners, masons, stonecutters, plasterers, carpenters, and slaters. [The increased mortality is probably owing to accidents.]				
(2) <i>Alternately in the Open Air and Indoors.</i>	11700	†2212	†59	266
Coopers, surgeons, hairdressers, glaziers, farriers, chimneysweepers, butchers, millers, tanners, grinders, ropemakers, waxchandlers, wheelwrights.				
(3) <i>in Confined Rooms.</i>	40783	*2341	*78	338
The 34 remaining professions.				
(4) <i>partly in Water.</i>	3569	*2536	†70	276
Fishermen, sailors, millers, tanners.				
INFLUENCE OF TEMPERATURE AND MOISTURE.				
<i>Professions carried on (1) in Warm, Dry Air.</i>	660	*2892	†66	226
Blacksmiths, coppersmiths, locksmiths, nailers, goldsmiths, beltmakers, chimneysweepers, swordmakers, tinmen, artillery-smiths, pewterers.				

	Total Con- tributors.	Morbidity.	Mortality.	Relative Mortality.
(2) in <i>Warm, Moist Air.</i> Bakers, brewers, confectioners, potters, soapboilers, gilders, lackers, waxhandlers.	6877	†1913	†52	273
(3) in <i>Cold, Moist Air.</i> Printers, dyers, grinders, plasterers, weavers, and the professions carried on in water.	8405	†2165	*83	384
(4) in <i>Common Air.</i> The 27 remaining professions.	36183	†2288	*81	359
(5) in an <i>Elevated Temperature.</i>		*2393	†59	247
(6) in <i>Moist Air.</i>		†2051	†69	338
(7) in <i>Rapid Alternations of Heat and Cold.</i> Blacksmiths, barbers, hairdressers, chimney- sweepers, brewers, millers, fishermen, and tanners.	7093	*9482	86	346
INFLUENCE OF THE MATERIALS EMPLOYED.				
<i>Professions carried on (1) in a Dusty Atmosphere.</i>	18602	†2267	†62	275
(2) in an <i>Atmosphere of Mineral Particles.</i> Stonecutters, masons, plasterers, locksmiths, blacksmiths, artillery-smiths.	7827	*2762	*77	311
(3) in an <i>Atmosphere of Vegetable Particles.</i> Bakers, millers, hairdressers, chimney- sweepers, ropemakers.	8174	†2160	†59	278
(4) in an <i>Atmosphere of Animal Particles.</i> Saddlers, furriers, tapesterers, brushmakers, clothbearers, hatlers.	2556	†1878	†23	125
(5) in <i>Smoke and Carbonaceous Vapours.</i> Blacksmiths, locksmiths, nailers, sword- makers, tinmen, artillery-smiths, pewterers, coppersmiths.	5342	*3167	†71	224
(6) in <i>Emanations of Mercury, Lead, and Arsenic.*</i> Pewterers, coppersmiths, tinmen, gold- smiths, beltmakers, batters, potters, plasterers.	4732	1525	58	388
(7) in <i>Metallic Emanations generally.</i>		2430	63	263
(8) in <i>Vegetable Emanations.</i> Bakers, coopers, brewers, dyers, lackers, weavers.	9542	2202	61	276
(9) in <i>Animal Exhalations.</i> Butchers, tanners, soapboilers, waxhandlers.	3768	1759	32	181

* The greater part of these trades are conducted on a very small scale at Würzburg; and many precautions are taken against the deleterious influence of metallic vapours.

	Total Con- tributors.	Morbidity.	Mortality.	Relative Mortality.
INFLUENCES OF MUSCULAR EXERTION.				
<i>Professions requiring (1) great Muscular Efforts.</i>	13363	†2133	†67	317
Brewers, coopers, thatchers, sailors, black-smiths, masons, stonecutters, butchers, millers, nailers, wheelwrights, carpenters, slaters.				
<i>Professions in which (2) but moderate exertion is required.</i>	19926	*2371	*104	439
Glovers, lacemakers, bookbinders, brush-makers, surgeons, confectioners, dyers, hair-dressers, goldsmiths, shopkeepers, farriers, tailors, shoemakers, tapesterers, watchmakers, gilders, pewterers.				
(3) <i>Slight, but continued Activity is required.</i>	26316	†2211	†56	264
The 36 remaining professions.				
INFLUENCES OF CERTAIN DETERMINED POSITIONS AND MOVEMENTS.				
<i>Professions in which the Men (1) are almost always Sitting.</i>	18829	*2577	*99	385
Glovers, lacemakers, brushmakers, goldsmiths, beltmakers, furriers, saddlers, tailors, shoemakers, tinmen, weavers, watchmakers.				
(2) <i>Generally Stand at work.</i>	22648	*2451	†69	281
Bakers, bookbinders, dyers, glaziers, black-smiths, turners, coppersmiths, butchers, nailers, grinders, locksmiths, joiners, swordmakers, ropemakers, plasterers, wheelwrights, carpenters, artillery-smiths.				
(3) <i>Alternately Sit and Stand.</i>	16648	†1713	†61	357
All the other professions.				
(4) <i>Work in a Stooping Position.</i>	24943	*2858	*95	336
<i>Sitting</i> —glovers, brushmakers, goldsmiths, tailors, shoemakers, watchmakers. <i>Standing</i> —glaziers, grinders, locksmiths, joiners, wheelwrights, gilders, pewterers, coopers, gardeners, tanners.				
(5) <i>Carry Burdens.</i>		†1939	†69	355
(6) <i>Climb, go up and down Stairs.</i>		†2100	†74	355
(7) <i>Use the Axe or Hammer.</i>		†2211	*81	368
(8) <i>Work with the Four Extremities.</i>		†2220	†71	316
INFLUENCES OF ALIMENTS.				
<i>Professions which prepare (1) Articles of Food.</i>	6983	†1732	†36	223
Bakers, butchers, gardeners, confectioners.				
(2) <i>Drinks.</i>		*2378	†63	266
Brewers, coopers.				

	Total Con- tributors.	Morbidity.	Mortality.	Relative Mortality.
INFLUENCES OF WAGES.				
<i>Professions (1) paid well in Summer, badly in Winter.</i>		†2138	*99	465
Thatchers, fishermen, gardeners, masons, plasterers, carpenters.				
<i>(2) which obtain High Wages.</i>	9886	†1634	†59	365
Brewers, lacemakers, printers, glaziers, goldsmiths, beltmakers, shopkeepers, tanners, swordmakers, ropemakers, tapesterers, watch and gun makers, gilders.				
<i>(3) which gain Low Wages.</i>	19854	*2714	*103	380
Glovers, brushmakers, barbers, hairdressers, potters, blacksmiths, butchers, nailers, grinders, tailors, shoemakers, weavers, coopers (Weisküffner.)				
<i>(4) which gain Moderate Wages.</i>	22750	†2223	†59	247
The remaining 21 professions.				
INFLUENCE OF EDUCATION, AND STATE OF MIND.				
<i>Professions of which the common Members (1) receive a tolerable Education.</i>	4928	†1118	†73	653
Shopkeepers, printers, goldsmiths, sculptors, watchmakers, &c.				
<i>(2) can scarcely hope to become Masters.</i>	9360	†1929	*66	448
Brewers, printers, millers, masons, carpenters.				
<i>(3) are subject to Reverse of Fortune.</i>				

Under this last head are to be classed those professions which depend for their existence on commerce, or in small German towns, such as Würzburg, principally on fashion. "The most striking example," says Dr. Fuchs, "of the influence exercised by fashion on the health of a profession, is furnished by the hairdressers of Würzburg. The 22 masters who, with numerous journeymen, in 1803, dressed the hair and the wigs of the inhabitants of Würzburg, have declined to 8, who together keep but 5 men, and the profession which Adelman esteemed healthy and ever cheerful, has lost its high spirits, and occupies, by its great mortality (196), one of the lowest places among the unhealthy professions. I am much inclined to ascribe the unfavorable state of health experienced by the hairdressers in great part to the mental impression which the decline of that noble art has exercised on its disciples."

In stating that the increased mortality of the hairdressers was, in our opinion, chiefly owing to the greater proportion of *old men*—to a necessary difference of age, such as is found in all declining professions—we

do not wish to cast a doubt on the great sensibility of those distinguished artists who have so long decorated the heads of the inhabitants of Würzburg. No doubt the sudden fluctuations of wages and employment in the manufacturing towns of this kingdom have a most powerful effect on the health and mortality of the operatives.

To sum up the results of this investigation, in reply to the question—"What influence have professions on the morbidity and mortality, independently of the form of malady; what professions are healthy, what unhealthy, and why are they so?" Dr. Fuchs lays down these inferences:

1. The influence of professions on the morbidity and mortality in general is remarkable; the difference in these respects between particular professions are great.

2. The mortality and morbidity do not always proceed in the same ratio. Many professions have great numbers sick and few deaths—and the reverse: only 8 professions (see Table) are equally distinguished by a high morbidity and relative mortality; and 16 others have few sick and proportionally few deaths.

3. According to the absolute *mortality*—according to the loss which a given number of individuals belonging to the same profession suffer in a year—22 professions are unhealthy, 34 are healthy.

4. Some agencies regulate the frequency of sickness (morbidity), others the fatality of diseases (relative mortality); and hence it is clear that in particular professions the number of sick, while in others the number of deaths, will be high, without the one invariably answering to the other.

5. The absolute mortality, on the contrary, is only influenced by causes which either uniformly raise or lower the morbidity and relative mortality, or exercise a *preponderating influence* on one of them; and is therefore, although its oscillations are generally of a more limited extent, the surest measure of the salubrity of professions.

The results of the present investigations appears then to indicate that the following circumstances connected with professions augment the mortality:—slight muscular exercise, bad wages, constant sitting, the bent posture, exposure to changes of temperature, low spirits, cold, moist air, cold dry air, working in-doors, mineral dust. They confirm the conclusions of Dr. Lombard with regard to the unfavorable influence of penury and misery on health, one of the best-established principles in statistics. A sedentary life is shown by each series of observations to be injurious. That education promotes health is, on the contrary, established by both. With regard to the influence of dusts and vapours the results differ; in fact, neither possessed the means of deciding this question.

This memoir displays great industry, accuracy, and considerable acquaintance with statistics; in many respects it merits more attention than anything that has yet been written on the hygiene of professions. One capital fact it establishes that in favorable circumstances 1 man in 4, or 22·8 per cent. has an attack of sickness annually; or, more precisely, 23 per cent. apply to friendly societies on the ground of sickness. Similar and more comprehensive researches we hope soon to see instituted in every part of Great Britain where there are Benefit and Health Assurance Societies.

ART. V.

1. *Traité pratique des Maladies Vénériennes ; ou Recherches critiques et expérimentales sur l'Inoculation appliquée à l'étude de ces Maladies.* Par PH. RICORD, Chirurgien de l'Hôpital des Vénériennes de Paris.—Paris, 1838. 8vo, pp. 808.
- A *practical Treatise on Venereal Diseases, or critical and experimental Researches on Inoculation applied to the study of these Affections.* By PH. RICORD.
2. *Recherches pratiques sur la Thérapeutique de la Syphilis, ouvrage fondé sur les observations recueillies dans le service et sous les yeux de M. Cullerier, Chirurgien en Chef de l'Hôpital des Vénériennes.* Par LUCAS CHAMPIONNIERE, Docteur en Médecine.—Paris, 1836. 8vo, pp. 415.
- Practical Researches on the Therapeutics of Syphilis, founded on observations gathered from the practice of M. Cullerier, Senior Surgeon of the Civil Venereal Hospitals.* By LUCAS CHAMPIONNIERE.—Paris, 1836.
3. *A Treatise on the Venereal Disease and its Varieties.* By WILLIAM WALLACE, Surgeon to the Jervis Street Infirmary, Dublin, &c.—London, 1838. 8vo, pp. 382.
4. *A Treatise on Syphilis.* By HERBERT MAYO, F.R.S., Senior Surgeon of the Middlesex Hospital.—London, 1840. 8vo, pp. 128.
5. *The Modern Treatment of Syphilitic Diseases, both primary and secondary, containing an account of the New Remedies, with numerous formulæ for their preparation and mode of administration.* By LANGSTON PARKER, Lecturer on Anatomy and Physiology in the Birmingham Royal School of Medicine.—London, 1839. 12mo, pp. 158.
6. *Report of Primary Syphilitic Cases.* By C. ASTON KEY. (*Guy's Hospital Reports*, October, 1839.)
7. *On the Venereal Cases in which Mercury is admissible or is not admissible.* (*Dublin Journal*, March, 1838.) *Clinical Lectures on the Venereal Disease.* (*Dublin Med. Press*, 1840.) By RICHARD CARMICHAEL, Esq.
8. *Manuel pratique de la Maladies de la Peau, appelées Syphilides, d'après les Leçons Cliniques de M. Biett.* Par JOS. HUMBERT, D.M.P. Ancien Chirurgien interne du Dispensaire de l'Hôpital Saint Louis.—Paris, 1833. 12mo, pp. 220.
- A *practical Manual of the Venereal Diseases of the Skin, from the Clinical Lectures of M. Biett.* By J. HUMBERT, D.M.P.—Paris, 1833.
9. *A Treatise on the Venereal Diseases of the Eye.* By WM. LAWRENCE, F.R.S.—London, 1830. 8vo, pp. 337.
10. *A practical Treatise on the Diseases of the Eye.* By WM. MACKENZIE, (*Chap. XII., containing the Syphilitic and Gonorrhæal Ophthalmia.*)—London, 1840. Third Edition.

11. *Observations on the Venereal Disease and Venereal Inoculation.* By W. ACTON, Esq. (*Lancet*, Nov. 30, 1839, Jan. 4, March 7, 1840.)
 12. *Beiträge zur Lehre von den Syphilitischen Krankheiten.* Von Dr. HAUCK, Königl. Stabsartze am Charité-Krankenhaus, Berlin. (*Rust's Magazin, Berlin*, 1840.)
- Contributions to our Knowledge of Syphilitic Diseases.* By Dr. HAUCK, of Berlin.

IN a former Number, (Br. and For. Med. Rev., Vol. V., p. 1,) we devoted considerable space to the consideration of syphilitic diseases. We there dwelt chiefly on the natural history of syphilis, and entered but briefly into the question of treatment: in the present article we propose to pursue more fully our enquiries into the therapeutics of syphilis, first generally, and then in reference to the particular forms of disease. Before entering, however, into the consideration of treatment, properly so called, it will be necessary to pass in review the important addition to our knowledge made by the researches of Ricord on Inoculation as applied to the diagnosis of venereal diseases.

It would carry us far beyond our limits to enter into the vexed question of the identity or non-identity of the venereal poison; whether all the affections succeeding to sores or discharges from the genitals are due to the application of one virus, whether they result from the action of many, or from one in different states of modification. We apprehend, however, that the facts we shall have to bring forward will go far to prove that if the different forms of venereal diseases, both in their primary and secondary varieties, are not owing to the absorption of poisons of a totally different character, they at least depend upon a virus very differently modified; and it is with surprise that we observe a writer like the late Dr. Wallace maintaining, at the present day, the identity of gonorrhœa and chancres, and recommending what must be considered in some measure an indiscriminate mercurial treatment for both.

M. Ricord informs us that he entered on his experiments on inoculation without preconceived notions or prejudices, and that he instituted them to determine the following points: 1. The existence of a special cause for the production of syphilitic diseases—the venereal virus. 2. To distinguish, one from the other, diseases apparently similar. 3. To establish the differences which exist between primary or local and secondary or constitutional syphilis. 4. To endeavour to frame a rational preventive and a curative treatment,—a preventive treatment for secondary symptoms, a curative for primary ones. 5. To settle some points in relation to hygiene and forensic medicine.

M. Ricord's experiments were performed by taking some of the secretion from the surface of a venereal sore, or the matter of gonorrhœa, upon the point of a lancet, and introducing it by puncture in the skin of the thigh of the patient himself.

In reference to the first question proposed, M. Ricord's experiments establish that chancre, whatever may be its seat, is the consequence of the application of a specific pus which a chancre alone secretes, which matter produces a similar chancre whenever placed in circumstances favorable to contagion. To repeat this experiment with success, it must be recollected that chancres are divisible into two distinct stages recognized by Ricord, Wallace, Carmichael, Evans, and others, viz. the stage

of ulceration and that of reparation or granulation. It is during the first stage only that the chancre secretes a specific pus, capable of propagating the disease, and producing a similar sore by inoculation : when the sore begins to heal, when granulations spring up, covered by simple puriform matter, the disease is not capable of propagation. In this case inoculation is negative and produces no result, from the circumstance that the sore no longer furnishes a specific matter, but simple pus not varying in its character from that of the secretion of an ordinary sore whose origin is due to other causes.

Mr. Evans states that from his experiments he is led to conclude that the fluid secreted by a chancre varies in its effects. He proves that the earlier the infection is taken, whilst the sore is in its excavated or ulcerating state, and, as we may infer, before the matter is truly purulent, the more severe and obstinate is the ulcer which it produces. The experiments of M. Ricord have been repeated by Dr. Mairion at the military hospital of Louvain, on 228 cases of various forms of syphilis : out of these 228 cases eighty-five were chancres or primary venereal sores, and of these eighty-five, fifty-three furnished the characteristic pustule by inoculation. M. Ricord describes the pustule succeeding to inoculation with the matter from a true chancre as follows (we avail ourselves of Mr. Parker's translation):

"If matter be taken from a chancre during the period of ulceration, and introduced under the epidermis by means of a lancet, it produces the following effects: During the first four and twenty hours the puncture becomes more or less inflamed; from the second to the third day it is accompanied with a slight tumefaction, and presents the appearance of a small papula surrounded with a red areola; from the third to the fourth day the disease assumes a vesicular form, the epidermis being raised by a fluid more or less opaque, presenting at its apex a small dark point; from the fourth to the fifth day the contents of the vesicle become purulent, the apex of the pustule is depressed, resembling very much the pustule of smallpox. At this period the areola, which had progressively increased, begins to diminish or altogether disappears, particularly if the disease does not increase; after the fifth day, however, the subjacent and surrounding tissues, which hitherto had undergone little or no modification, or were merely slightly oedematous, become indurated by the extravasation of a plastic lymph, which communicates to the touch the resistance and elasticity of cartilage. After the sixth day the contents of the pustule thicken, the pustule itself shrivels up and is covered with crusts. These enlarge towards their base, and forming by successive strata, at length assume the form of a truncated cone with a depressed apex. If these crusts are detached or if they fall off, we find under them an ulcer with a hard base, extending through the whole thickness of the skin. The surface of this ulcer, of a deep red colour, is foul, covered with a thick adhesive pultaceous matter almost like a false membrane, which cannot be removed by any attempt to clean the sore. The edges of the ulceration at this period appear as though it had been dug out from the surrounding parts by a sharp circular instrument. The immediate vicinity of the sore is surrounded by a dark red or livid margin, more elevated than the surrounding parts." (Parker, pp. 31-2.)

M. Ricord gives 389 cases of chancres which, when tested during the period of ulceration, produced this characteristic pustule by inoculation. In the cases detailed by M. Mairion thirty-two ulcerations upon the genitals out of eighty-five did not yield the characteristic pustule, the punctures being followed merely by a slight degree of inflammation

which generally disappeared in the course of twenty-four hours. These then were cases of simple ulcers and not true chancres. It is evident that the experiments of Ricord prove beyond the possibility of doubt the existence of a true "venereal virus," a specific morbid poison. Dr. Wallace, without being aware of Ricord's experiments, states as a characteristic of the legitimate form or primitive type of true syphilis, "that it is more easily propagated by inoculation than any of the other forms of the venereal disease." This is owing to its independence of contingent or accidental circumstances; and hence it is probably the form of primary syphilis which would invariably occur if the action of the poison was uninfluenced by any such circumstances; whereas we often fail in producing the other forms of venereal diseases because they are partly the result of accidental causes which may not be present at the time of inoculation. In Dr. Wallace's clinical lectures, published in the *Lancet*, many experiments are detailed which entirely corroborate the statements of Ricord. He says (vol. ii., 1836-7) "the local specific effects which result from inoculation with the matter of the primary pustule commence almost immediately. In all the experiments which I have detailed, specific inflammation was produced within the second day, and in three or four days the characteristic pustule was fully developed." Both Carmichael and Mayo corroborate the accuracy and value of Ricord's experiments.

The mixture of the true venereal virus, secreted from a chancre in the state of ulceration, with the ordinary mucus of the vagina, the urethra, or the surface of the prepuce, or with the secretions of these parts in a state of inflammation, does not destroy its specific character or prevent it producing the characteristic pustule by inoculation, unless it be too much diluted. Various chemical agents, however, destroy its powers, and it no longer produces any result when tested by inoculation. Chemical substances decompose it. Amongst these Ricord mentions alkalis, and moderately concentrated acids, as the nitric, hydrochloric, sulphuric, and acetic; potass, soda, ammonia, wine, alcohol, and a strong decoction of tan: the active principle of the latter with wine forms, as we shall presently see, one of his favorite applications to primary syphilitic sores.

The next question to be resolved is the identity or non-identity of the morbid poisons producing a true chancre and gonorrhœa. We believe the diseases to be totally distinct, as the experiments of Ricord and many others seem to us incontestably to prove. Not only are they proved to be distinct by the results drawn from inoculation but by their pathology and the effects of remedies. It is well known that Hunter considered them identical. Dr. Wallace maintains nearly the same views, considering gonorrhœa as a form of primary syphilis which he describes under the term "catarrhal primary syphilis;" and we find some writers even at the present day still maintaining that gonorrhœa gives rise to chancres followed by secondary symptoms: these discrepancies, however, we hope to succeed in some measure in reconciling. Gonorrhœal matter, says Ricord, applied to a healthy mucous surface produces a gonorrhœa, the more easily as the matter itself is more purulent and less mucous or sanious.

"In no instance is it capable of producing a true chancre, but as a simple

irritant, like the fluid of coryza, for example, it may excoriate the skin with which it remains some time in contact, but cannot produce a specific ulcer. Convinced of these truths, so frequently verified, my pupil, M. Leon Ratier, has frequently inoculated the skin of his arm with gonorrhœal matter without the slightest result. The diseases consecutive to gonorrhœa do not furnish a specific pus or one producing a specific ulcer from inoculation. Constitutional syphilis does not succeed to gonorrhœa. Where these symptoms are said to have succeeded a gonorrhœa, in the observations recorded by authors, the cases are in a direct ratio of frequency with those of chancres of the urethra. These cases have been incorrectly diagnosticated, the diseased surfaces not having been explored." (Ricord, p. 133.)

In Mr. Acton's valuable papers in the *Lancet*, referred to at the head of this article, several interesting facts bearing on these points are recorded; and many others have been made public by other followers of M. Ricord.

Dr. Mairion tested eighty-five cases of gonorrhœa; of these, four yielded a specific pustule from inoculation—there were chancres of the urethra. The remaining eighty cases of simple gonorrhœa produced no result, however frequently the diseases were tested, which they were in all periods of their course. In one case the results were not noted. Mr. Carmichael, in his lectures on venereal diseases, recently published in the Dublin Medical Press, has misunderstood and consequently misstated some of Ricord's experiments. Mr. Carmichael there adduces some cases of discharges from the urethra which being tested by inoculation yielded the characteristic pustule of chancre. Mr. Carmichael gives this as a case of gonorrhœa; but Ricord distinctly calls it a case of concealed chancre, chancre of the urethra (chancres larvés.) "In pressing the fossa navicularis," says M. Ricord, "we felt the induration indicating the seat of the chancre." This is the case of B—r, quoted by Mr. Carmichael from p. 235 of Ricord's book as a case of gonorrhœa. The arguments generally adduced for the identity of the two poisons in chancre and gonorrhœa are, the occurrence of secondary syphilis after diseases characterized by discharges from the urethra only, and the fact that a female with an ulcer only shall produce gonorrhœa in one instance and a true venereal pustule in a second. The true conditions of these cases are well stated by Mr. Babington:

"With regard to the first of these," he says, "the instances are so rare that they must rather be considered as anomalies which we cannot yet account for than be admitted in contradiction to the general current of experience. The secondary symptoms in such instances are rarely of an indubitable character. It may be doubted whether distinct copper tubercles ever followed simple gonorrhœa. We have generally a mottled state of the skin, or the lighter and more fugitive forms of lichen, or slight excoriation of the surface of the tonsil. . . . It has been asserted that women who are affected with gonorrhœa alone will frequently produce chancres in those men who are connected with them. Without venturing to give a positive denial to this statement, it may be suggested that its truth has seldom, if ever, been satisfactorily ascertained. The examination of the surgeon has evidently been confined to the external parts. The interior of the vagina has not been examined; yet it is certain that chancres do occur here, though more rarely, so as to be discovered only by the use of the speculum." (Babington, in Hunter's Works, pp. 147-8.)

Much confusion exists in Mr. Judd's account of the pathology of gonorrhœa, and he has evidently included diseases of a totally different

character under the term "urethritis venerea." "Generally," says Mr. Judd, "gonorrhœa produces a discharge of pus only; but at other times it also produces a pustule or abscess within the urethra, similar to what it does more usually on the surface, and just like the discharge from a pustule on the glans penis." These latter are clearly examples of chancres seated within the urethra, whose existence has lately been so well pointed out by Ricord and Cullerier. Chancres seated within the urethra are not accompanied by the usual symptoms which characterize gonorrhœa. We have now under our care a gentleman who has a chancre extending for an inch or an inch and a half along the urethra; this gentleman has recovered rapidly under the influence of a mercurial course, to which he submitted himself without consulting a surgeon: the chancre of the urethra was accompanied by one on the prepuce, for which he adopted this plan of treatment, having before had chancres cured in this way. The chancre in the urethra, which at first attracted little attention on account of insensibility, healed with that on the prepuce. The discharge from the urethra was comparatively trifling, much less than in ordinary gonorrhœa, and the pain in micturition much less. Mr. Mayo mentions a case similar to this (p. 39), in which the patient had a chancre and a discharge from the urethra: he tested the matter from both by inoculation; to his great surprise the characteristic pustule of chancre succeeded in both instances; on pressing the lips of the urethra apart a chancre was discovered, and the result at once explained.

"I entertain little doubt that the various cases reported by so many, of the same woman infecting indifferently either with chancre or gonorrhœa, admit of the same explanation. The person who has communicated the two diseases has had them both. M. Ricord has established the fact that chancres often exist deep in the vagina, and even upon the os uteri. . . . I believe, from observation, that such chancres, not external in women, may remain for months in an indolent and unprogressive state. I attended a gentleman for three successive chancres, which he had caught at intervals of a very few months from the same woman, who would have it she was in perfect health. At last she consented to allow me to examine her, when I found two small ulcers within the external labia, which got well under mercury." (Mayo, p. 40.)

The researches of M. Ricord on the nature and differential diagnosis of buboes are of equal interest. According to this author, buboes are of two kinds, simply inflammatory, or virulent: in the first instance, succeeding to gonorrhœa, balanitis, or any other primitive affection; and in the second, arising from the consequences of the direct absorption of specific matter from a chancre.

"The virulent bubo, or that resulting from the absorption of the specific pus from a chancre, is a disease precisely similar to chancre in its nature, differing from it only in its seat. The virulent bubo is the only form capable of propagation by inoculation. The symptoms hitherto indicated by authors, with a view of establishing a differential diagnosis between the virulent bubo and one merely inflammatory, are of little value, inoculation being the only certain and pathognomonic sign." (pp. 150-1.)

There is a species of bubo which is termed by the French writers "bubon d'emblée," that is, an enlargement and suppuration of one or more of the inguinal glands which has not been preceded by any other of the more common forms of venereal diseases, nor in fact by any other symp-

tom. The existence of these buboes is also admitted by Fallopius, Astruc, Swediaur, Bertrandi, and lately by Dr. Mondret, Mr. Judd, and Mr. Parker. M. Ricord insists that when these buboes occur, without the intervention of any antecedent form of disease, it is impossible to judge of their true character without the test of inoculation, and, consequently impossible to heal them rationally or well. M. Ricord maintains that those only which furnish the true characteristic pustule of chancre by inoculation are those only which are capable of being followed by secondary symptoms. Mr. Judd mentions a considerable number of cases of this kind, where buboes succeeded to connexions with prostitutes without any other symptom of syphilis having preceded them. None of the parties mentioned by him had any other affection to which the buboes could be traced; and in one case the affection was clearly venereal, for it was followed by nocturnal pains, and a true syphilitic eruption of mottled skin, or exanthema roseolum. In testing open buboes, M. Ricord impresses upon us the necessity of taking the matter for experiment from the secreting surface of the sore itself, and not from the pus which may run out from the bubo, since he constantly found that the latter, which was doubtless ordinary pus, produced no effect, whilst the former—that from the surface or bottom of the sore itself—was followed, where the bubo was venereal, by the usual characteristic pustule of chancre.

Hunter denied the power of secondary syphilis to be propagated by inoculation, and the modern researches of Ricord have corroborated all that Hunter taught and wrote on this point. The virus absorbed from a chancre may produce the characteristic pustule, and thus propagate the disease by inoculation, if the matter be taken from the surface of the chancre itself during its period of ulceration, or from the lymphatic vessel or vessels leading from the chancre to the first lymphatic gland, or from the gland itself should this inflame and suppurate; but beyond this point where the virus becomes mixed with the blood, most probably through the medium of venous absorption, the disease is not capable of being propagated by inoculation, nor do secondary affections, properly so called, such as ulcers of the throat or skin, or ulcerating tubercles, or any of the forms of secondary or constitutional syphilis, produce venereal sores when tested by inoculation. M. Ricord concludes from his experiments, which perfectly establish those of Hunter,

“That when we find the forms of secondary syphilis not transmitted by inoculation, it is not because the disease is no longer syphilitic, but that the virus, modified by its mixture with the blood, loses the power of being propagated by inoculation, and at the same time acquires another, that of being transmitted by hereditary taint. That whenever a syphilitic sore, whatever may be its seat and form, produces a chancre by inoculation, it is of necessity a primary affection, and not a secondary or constitutional one.” (pp. 166-7.)

We are informed by Sir George Ballingall, that “in the Lock Hospital at Edinburgh, the experiments of Ricord upon inoculation from primary sores have been lately repeated, and with pretty nearly the same results. One of the principal points ascertained by them is that chancres of a true syphilitic character, according to Ricord’s test, may heal under the simplest treatment in the course of a few days, and consequently that the shortness of time an ulcer upon the genitals remains

open does not furnish, as has been sometimes supposed, a proper criterion of the non-syphilitic nature of that ulcer." (Ballingall's *Outlines of Military Surgery*, 2d Edit., Edinb. 1838, pp. 419-20.)

There are certain circumstances, however, in which secondary symptoms are propagated by inoculation, as from the mouth of an infant having sores from constitutional syphilis transmitted by hereditary taint to the nipple of its nurse. In these instances the nipple of the nurse becomes ulcerated, and the ulcer "will not resemble the fissures which are so common on the nipple of women who give suck, and which occasion no loss of substance, but will be a corroding ulcer, and will destroy the whole or greater part of the nipple before it is healed." (Babington, in Hunter, p. 476.) From these ulcers on the nipples the glands in the axillæ frequently enlarge, and, sooner or later, if remedies be not used, sore throat, eruptions, or nodes arise, which are not distinguishable from the ordinary forms of constitutional syphilis.

These facts are the chief exceptions to the principles laid down by Hunter and Ricord of the non-transmission of secondary syphilis by inoculation, and "it is difficult in the face of them to deny that they are the effect of the venereal virus."

Some experiments detailed by Dr. Wallace in the lectures before quoted, seem in some measure to invalidate the statement that secondary symptoms are not capable of being propagated by inoculation. He shows that inoculation with the matter from a constitutional pustule very often fails to produce a specific effect. So far Dr. Wallace agrees with the opinions of Hunter and Ricord; but he adds that it does occasionally succeed, not in producing a sore having the character of a true chancre, but one resembling the ulcers which accompany the constitutional forms of syphilis. Dr. Wallace observes that inoculations with this matter succeed much more frequently if applied to a surface than if introduced by puncture. Dr. Wallace's experiments and remarks certainly prove that the laws which regulate the propagation of the two forms of disease are very different. Dr. Wallace compares them to the modes in which scabies and vaccination are propagated, one by contact, the other by puncture.

We now proceed with our enquiry into the modern treatment of syphilis. We need not here enquire into the comparative merits of the two opposite modes of treating the affection practised at the present day, or detail the statistical results of such treatment: for these we refer our readers to the comprehensive article in our Ninth Number. The treatment of syphilis without mercury is termed "the simple or physiological method," the treatment with mercury "the revulsive or mercurial." We purpose in the remainder of this article to confine ourselves to the question of the actual mode in which the modified mercurial treatment is carried on by modern surgeons, referring our readers to our former article for details of the simple treatment.

I. PRIMARY SYPHILIS. We shall commence with the catarrhal affections. There is a true and false gonorrhœa properly so called; and also gonorrhœal diseases of the eye. This class of affections constitutes the non-virulent venereal diseases of Ricord, the catarrhal primary syphilis of Dr. Wallace, and the erythematous primary diseases of M. Desruelles. The first affection of this class is that described by

M. Desruelles under the term "balanitis," the external, bastard, or false gonorrhœa of Ricord. This affection consists in inflammation, with a muco-purulent discharge, from the mucous membrane covering the glans penis. When the disease extends to the under surface of the prepuce it is called balanoposthitis, and this is its most general form.

"The symptoms which ordinarily denote the existence of balanitis are heat and itching of the glans penis and prepuce, with a discharge of variable character from the orifice of the latter: these symptoms may be accompanied by phymosis or paraphymosis. When the prepuce can be drawn back and the glans uncovered, this is found red, swollen, and covered with a muco-purulent fluid of an unpleasant smell. The epithelium of the glans and prepuce is detached in places, excoriated, but not in a state of true ulceration. The testes and glands of the groin are more or less swollen and tender; we have seen the latter occasionally suppurate and bubo supervene upon balanitis." (Parker, p. 41.)

Balanitis may be the consequence of connexion with women suffering from gonorrhœa, but more commonly succeeds to intercourse with females menstruating, labouring under leucorrhœa, simple inflammatory affections of the vagina, or when this part is covered with secretions of a more or less irritating character. Mr. Judd gives several cases where a species of bastard gonorrhœa, soon subsiding, succeeded intercourse with females during menstruation. In some instances, balanitis occurs to married men who have had no intercourse, except with their wives, and where there has not been the least reason to suspect the character of the female. Mr. Parker relates a very remarkable case of this kind:

"A lady of most irreproachable and exemplary character, the mother of nine children, in the seventh month of her pregnancy of her tenth child, became affected with itchings and swelling of the labia, and a muco-purulent discharge from the vagina: her husband consulted me a few weeks afterwards, having certainly had no other connexion, with severe inflammation and excoriation of the surface of the glans and prepuce, from which oozed a muco-purulent fluid. Some slight astringent washes soon removed the disease, which was thought of no more. The lady, however, became again pregnant, and about the same period of her pregnancy her leucorrhœa again returned more severely than before. Her husband again consulted me: the internal surface of the prepuce and glans were swollen, intensely red, and painful, and covered with small aphthæ; in some places the mucous membrane was denuded, exposing a deeply-red surface secreting a thick pus." (Parker, p. 81.)

It is of great importance, where the character of a female is at stake, to determine whether the affection she is labouring under be merely a chronic or subacute vaginitis, or a true gonorrhœa. This point engaged the attention of Mr. Hunter. "Gonorrhœa," says he, "is not so easily known in them as in men, because the parts commonly affected in women are very subject to a disease resembling the gonorrhœa, called *fluor albus*; and the distinguishing marks, if there be any, have not yet been completely ascertained. The kind of matter gives us no assistance in distinguishing the two diseases, for it often happens that the discharge in the *fluor albus* puts on all the appearance of the venereal matter; and an increase of discharge is no better mark by which we can distinguish the one from the other. Pain, or any peculiarity in the sensation of the parts, is not a necessary attendant upon this complaint in women, therefore not to be looked for as a distinguishing symptom." (Op. cit.

pp. 186-7.) Modern authorities do not seem to have advanced much since the time of Hunter in determining the differential diagnosis of the two diseases. "The diagnosis of leucorrhœa," says Dr. Churchill, in his *Outlines of the Principal Diseases of Females*, "is, according to all authorities, extremely difficult." Sir C. M. Clarke seems to think it impossible. Ricord thinks all doubt may be removed by an examination with the speculum. Whenever the peculiar erosions or superficial ulcers of the mucous membrane covering the cervix uteri are discovered, and which occur in nineteen out of twenty acute cases, we can have no hesitation in pronouncing the disease to be true gonorrhœa. Uncomplicated balanitis generally gives way quickly to remedies of an appropriate kind. If the prepuce can be denuded, Ricord recommends the surface of the glans and prepuce to be superficially cauterized, by drawing the solid nitrate of silver quickly over the whole diseased surface. Slightly astringent injections between the glans and prepuce are of great service, as recommended by Desruelles and Cullerier. Mr. Parker recommends the following liniment to be introduced between the glans and prepuce by means of a camel-hair pencil: *R. Cerati simp. v. Mellis, Olei Olivæ, āā ʒj. Hydrarg. Chlorid., ʒss. P. Opii, ʒj. M.* All the modern writers under review agree in the propriety of an antiphlogistic treatment in the early stages of acute or virulent gonorrhœa.

"In the early stage of the more phlegmonoid varieties, and these occur in more healthy habits, great advantage will be obtained in the first instance by such remedies as subdue vascular action, such as bloodletting, particularly local bloodletting, by the application of leeches to the region of the frænum, or by the division of one or more of the veins in the body of the penis; also by the gentle but full evacuation of the bowels, by antimonials, by perfect quietness, particularly in the recumbent posture, by abstinence, by fomenting the perineum with tepid water, by a very soft poultice to the end of the penis or orifice of the urethra, when the prepuce is not sufficiently long to cover the latter, by suspension of the testicles, by diluting, alkaline, and mucilaginous drinks, and by the use of the hip or general tepid bath." (Wallace, p. 256.)

When the acute inflammatory symptoms have been subdued, Dr. Wallace submitted his patients to the use of what may be termed the specific remedies in gonorrhœa; such are cubebæ and the copaiba balsam, with injections of the nitrate of silver and mercury. Mr. Judd, Ricord, Cullerier, and Mr. Parker have employed the nitrate of silver injections with great benefit in gonorrhœa; there appears, however, amongst these writers great difference of opinion as to the degree of strength in which the solution of this salt should be employed. Dr. Wallace and Mr. Judd have used it in the proportions of fifteen grains or even more to the ounce of distilled water; Ricord and Mr. Parker recommend two grains to the half-pint. Sometimes the solution of nitrate of silver cannot be borne or does not check the discharge. In these cases the authors before us have proposed a vast variety of remedies. A favorite injection with M. Ricord is a solution of the ioduret of iron in the proportions of three grains to six ounces of distilled water. In weak solutions the ioduret of iron has frequently arrested the discharge in five or six days; again it has produced an acute attack of urethritis; but when this has subsided the patient has found himself cured of his gonorrhœa. Sir George Ballingall has made some observations on the use of the nitrate of silver

injections, of the strength recommended by Dr. Wallace and Mr. Judd, and the results would lead us to make use of it with a less proportion of the salt. Sir G. Ballingall employed it in two cases, and both recovered quickly, but at the expense of much suffering. In twenty cases, in which it was used in the 88th regiment in the strength of a scruple to the ounce, the cases were cured at various periods from ten to forty-two days, the average length of time having been seventeen days. In seventeen cases treated in the same regiment by rest and abstinence, the average duration of the treatment was only eight days. Rest and abstinence, however, are not always to be enforced in private practice; and Sir G. Ballingall thinks that unless injections be employed immediately on the subsidence of the inflammatory symptoms, the disease may be protracted for months. Where the solution of the ioduret of iron has been borne, the average duration of the treatment has been seven or eight days. Mr. Judd has given from his own practice a table of the comparative powers of different injections in curing a gonorrhœa quickly.

<i>Composition of the Injection.</i>	<i>No. of days in curing.</i>
Sol. Liq. Plumbi, c. }	Two.
Ext. Belladonnæ. }	
Ditto.	Five.
Ditto.	Three.
Ditto.	Five.
Tinct. Ferri Mur. c. aquâ.	Five.
Ditto.	Four.
Ditto.	Seven.
Tinct. Ferri Mur. c. aquâ. }	Six.
Sp. Cubebæ et Copaibæ. }	
Sol. Argenti Nitratis.	Five.
Ditto, et Copaibæ.	Seven.
Ext. Cubebæ.	Three.
Ess. Cubebæ et Bals. Copaibæ. }	
Inject. Zinci Sulphatis. }	By twice using in one evening.
Ditto.	One.

All these persons, says Mr. Judd, were cured in unusually short periods, of from one to seven days, and the last two only appeared to suffer from the sudden suppression.

The formulæ for a great variety of injections are given by Mr. Parker, (pp. 65-9.) Amongst these a favorite one of M. Ricord may be mentioned, consisting of a solution of pure tannin in port-wine in the proportions of eighteen grains of the former to six ounces of the latter. This is occasionally very useful. We have known a few grains of tannin placed upon the tongue quickly cure a salivation which no other remedy would check. Dr. Wallace employed mercury, given internally, in gonorrhœa, or what he terms catarrhal primary syphilis. The grounds upon which this is recommended are certainly not sufficient to warrant the general exhibition of this remedy in the ordinary forms of gonorrhœa, and we had thought the experience of modern surgeons had set this matter at rest. No British surgeon can forget the manly manner in which Sir A. Cooper exposed the abominable system of submitting the patients in Guy's Hospital to courses of mercury for the cure of gonorrhœa. "To compel an unfortunate patient to undergo a course of mercury for a disease which does not require it is a proceeding which reflects disgrace

and dishonour on the character of a medical institution." Yet we find Dr. Wallace, on the theoretical assumption of the identity of the poisons in gonorrhœa and syphilis, recommending five grains of blue pill with a quarter of opium twice a day for two or three weeks. "This," says Dr. Wallace, "has appeared to me sufficient to afford all the assistance required in general for the removal of the disease, or to protect the constitution from contamination." What has been already stated respecting masked or urethral chancres will explain the favorable results obtained by Mr. Wallace in some cases, and account for such a practice having been adopted by so experienced a surgeon.

Although gonorrhœa is not followed (except in very rare instances, and even these are matters of doubt) by secondary symptoms, properly so called, it appears to dispose the economy, either from sympathy, metastasis, or the actual contact of gonorrhœal matter to other mucous surfaces, to several diseases of a destructive character, which are of more importance than the affection to which their origin is due. Amongst these we shall here briefly notice diseases of the testicles and of the eye, as the works before us furnish some new and important facts on both these heads.

Swelled Testicle. The most frequent of all the diseases of the testicle which succeed to or complicate a gonorrhœa is inflammation of the epididymis, and so frequent and regularly does this occur in many cases of gonorrhœa, that Ricord terms it "blennorrhagic epididymitis." This disease is seated in the convolutions of the epididymis and not in the substance of the testicle itself. It has generally been supposed that this affection succeeds to the sudden suppression, or quick cure of a gonorrhœa; but M. Ricord thinks, and we believe with justice, that the chances of a swelled testicle are increased in direct ratio to the continuance of the disease. "The disease in question," he says, "does not happen once in 300 times in the first week of a gonorrhœa, commonly it occurs after the second week, but it is most frequent during the third or even at a later period; and this takes place both in chronic and acute cases." (pp. 749-50.) The occurrence of this disease is favoured during the continuance of a gonorrhœa by exercise, constipation, the abuse of stimulating drinks, and the neglect of the suspender. M. Ricord describes two forms of this disease: one in which the epididymis becomes inflamed from sympathy, without the inflammation having passed along the vas deferens, and a second in which the inflammation has advanced along the ejaculating duct to the vesicula seminalis, and thence along the vas deferens to the epididymis. If this species of inflammation occur with any degree of intensity, it soon involves the testicle and its envelopes, and hence, succeeding or complicating it, we commonly find inflammatory hydrocele, œdema, or phlegmon of the scrotum, with inflammation of the substance of the gland itself. Dr. Wallace remarks that this variety of diseased testicle "is distinguished by its occurring at the *seeming* decline of the original affection, and by the vas deferens being diseased before the epididymis, and the latter before the body of the testicle, and it will be found that in proportion as the original disease retreats, as it were from the anterior extremity of the urethra, the more deeply-seated portions of this canal become affected with tumidity and tenderness." These remarks favour also the opinion of Ricord, that the probabilities of the disease ex-

tending to the testicle are in direct ratio with the time of its continuance, and hence the early use of specific remedies, are our best guarantees against consecutive diseases of the testicle.

The treatment generally adopted in affections of this kind consists of general and local bleeding, fomentations, poultices, with evaporating and slightly astringent lotions. Under this plan patients are generally a long time in recovering, and its use confines them to bed and the recumbent posture. In reference to bleeding, both general and local, we perfectly agree with Dr. Wallace :

“In some cases general bleeding will be useful, but in the majority it will not be necessary. The inflammation is for the most part of an irritable character, and irritable inflammations are seldom benefited by venesection. The topical abstraction of blood by unloading the weak and distended capillaries, without debilitating the system, may be more useful, but the circulation in these vessels is in general relieved by position ; and the patient should preserve a recumbent posture, with the testicles carefully suspended.” (Loc. cit.)

Suspension of the testicles with gentle pressure is of great service in affections of this character, and has given rise to the treatment now uniformly practised by Fricke in Hamburg, and by Velpeau and Ricord in Paris. Compression in inflammation of the epididymis and the envelopes of the testicle generally effects a cure in four, five, or six days. It prevents the occurrence of hydrocele, and one inestimable advantage is that during its employ the patients can, except in very acute cases, follow their occupations. For a full account of this practice, as first introduced by Fricke, we refer the reader to the Second Volume of this Review, (p. 253.) Since that paper was published we have adopted the practice in many cases, and can speak most unequivocally in its praise ; and it may be employed even in very acute cases. We have seen several instances where the patients have not lain in bed an hour, whilst under the ordinary antiphlogistic treatment they would have been confined from ten days to a fortnight.

Venereal Diseases of the Eye. Whilst in ordinary cases secondary symptoms, properly so called, do not follow a common gonorrhœa, the continuance of this disease for any length of time, particularly in irritable subjects, appears to dispose the economy to the attack of several diseases which are of a more formidable character in their results than the constitutional symptoms which succeed to primary syphilitic sores. Of this character are several diseases of the eye, and affections of the fibrous and synovial systems. The first and perhaps the most formidable affection of the eye we have to notice is that which is commonly termed gonorrhœal conjunctivitis. This disease frequently affects children, and is then termed ophthalmia neonatorum, or the purulent ophthalmia of infants. “There is reason to suppose,” says Dr. Mackenzie, “that this disease is not unfrequently an inoculation of the conjunctiva by leucorrhœal fluid during parturition ; and that therefore it may often be prevented by washing the eyes of the infant with tepid water, as soon as it is removed from the mother.” (Practical Treatise on Diseases of the Eye, third edition, 1840.) The worst form of this disease is, however, the result of the direct application of gonorrhœal matter to the surface of the conjunctiva. One of the most frequent results of this most formidable disease is purulent infiltration of the cornea, “by which its texture

is speedily destroyed, first of all exteriorly to the pus effused between its lamellæ, and then through its whole thickness, and this in a small spot only, or over its whole extent; so that sometimes we find only a small penetrating ulcer, with the iris passing through it; in other cases the whole cornea is gone, the iris exposed, and the humours protruding through the pupil." In many instances also the lens comes away. In recent cases the eyes are to be washed out every eight hours with a collyrium composed of one grain of the bichloride of mercury, and eight of the muriate of ammonia, in eight ounces of water, and immediately after this has been done, either with a soft sponge or by means of a syringe, a solution of the nitrate of silver in the proportion of ten grains to the ounce is to be applied over the whole surface of the inflamed conjunctiva. Under this plan of treatment the infant generally opens the eyes in two or three days, and in ten or twelve the acute symptoms are overcome. We have frequently seen acute recent cases of purulent ophthalmia cured in three or four days by introducing daily between the lids a portion of ointment composed of ten grains of nitrate of silver, twenty minims of the liquor plumbi diacetatis, and one drachm of adeps, or unguentum cetacei. With these remedies local depletion and blisters may in certain cases be used. "In cases which have been neglected for perhaps eight or ten days, it is necessary to take away blood from the external surface of the upper eyelid by the application of a leech, or from the conjunctiva by scarification. The former may be tried in the first instance, and unless followed by marked abatement of the redness and swelling on the inside of the lids the conjunctiva may next be divided with a lancet. The taking away of blood in either of these ways is productive of much benefit, and ought by no means to be omitted, if there be any tendency to chemosis or any threatening of haziness of the cornea." (Mackenzie, p. 40-3.) Blisters are very serviceable, particularly in sub-acute or chronic cases; the bowels should be opened in the acute forms by calomel and castor oil. In threatened disorganization of the cornea recourse must be had to the extract of cinchona or the sulphate of quina. In the relaxed states of the conjunctiva which succeed to the disease, the topical application of the vinum opii is useful. The pure gonorrhœal ophthalmia makes its appearance under three forms: 1st, It may arise from the direct application of gonorrhœal matter to the eye; 2dly, It has been supposed to be metastatic; and 3dly, It has been considered, at least in certain cases, as an effect owing to irritation merely without either the direct application of the matter or metastasis. Some writers have denied that the application of gonorrhœal matter to the eye of the same individual has power to produce the first form of the disease of which we are speaking, and this was the opinion of Dr. Vetch. Numerous cases, however, establishing the fact that the application of gonorrhœal matter produces the most destructive forms of inflammation of the eye have been detailed by Lawrence, Mackenzie, Wallace, Astruc, Foot, Wardrop, Delpech, and Bacot. In the second form of the disease the eye is said to suffer from metastasis; "it is stated that the gonorrhœal discharge is suppressed, and that the inflammation of the eyes occurs in consequence of that suppression." This view is supported by Richter, Scarpa, and Beer, and they consider the restoration of the discharge from the urethra as a principal indication in the treatment of the dis-

ease. Saint Yves speaks also of this disease, but neither Dr. Mackenzie nor Mr. Lawrence have met with cases of gonorrhœal ophthalmia from metastasis, neither does Dr. Wallace allude to it. The third form of disease, where gonorrhœal inflammation of the eye occurs during the continuance of a clap, without the direct application of the matter, or without its suppression, is admitted both by Dr. Wallace and Mr. Lawrence. "Since then gonorrhœal ophthalmia may occur whilst the discharge from the urethra continues, and since it does not take place when that discharge is stopped, we cannot admit that the affection of the eye owes its origin to the cessation of disease in the urethra. I am inclined to refer its occurrence to the state of the constitution, without being able to point out in what that state consists; and to regard it as a pathological phenomenon analogous to those successive attacks of different parts which are observed in gout and rheumatism." (Lawrence, p. 34.) Dr. Wallace is pretty nearly of the same opinion: "that this form of ophthalmia is not caused, like the preceding, by the direct contact of matter from without is demonstrated by the fact that it has been observed to occur more than once in the same individual, although every means had been most carefully employed to protect the eyes from contamination. Indeed I know several persons of the most cautious and cleanly habits who uniformly get this ophthalmia when they get a clap." (Wallace, p. 303.) Lawrence, Wardrop, and Bacot place their chief confidence in the treatment of the acute forms of this disease in "the boldest antiphlogistic treatment." Mr. Lawrence thinks "as much blood should be taken from the arm as will flow from the vein, and that the evacuation should be repeated as soon as the state of the circulation will allow us to get more." (p. 36.) Blood must also be taken from the temples by cupping and by the free application of leeches round the part until the pain and vascular congestion is relieved. Mr. Wardrop goes so far as to say that the only case of gonorrhœal ophthalmia he had seen in which the eye was saved was that of a young woman in whom venesection was repeated as often as blood could be got from the arm. Bleeding alone, however, must not be depended on, but at the very commencement of the disease local applications of an astringent character, hereafter to be mentioned, must be combined with it. Notwithstanding these authorities, we are disposed to think that bleeding has been too exclusively relied upon in this disease, which is in its commencement purely local; and Mr. Lawrence himself is dissatisfied with the results of the cases treated exclusively on this plan, although he attributes its want of success to its not having been employed to a sufficient extent. However, he mentions a case (Case 5) in which blood was taken very largely, both locally and generally, and other powerful antiphlogistic means were resorted to, yet the eye was lost. Mackenzie says "bleeding alone must not be depended on," and O'Halloran is of opinion that if any enquiry were instituted amongst army surgeons it would be found that those who had used the greatest depletion were the least successful practitioners." Ricord says we must on the onset bleed our patient largely from the arm, and apply leeches freely to the number of forty or fifty to the internal canthus, in the course of the angular vein; to the temple and along the course of the jugular of the same side. Desruelles and Cullerier follow nearly the same practice. Whatever plan is adopted

it should be pursued with the greatest energy, as it is well known that vision may be irretrievably lost in forty-eight hours. "Not a moment should be lost in endeavouring to control the disease, and our treatment of catarrhal syphilis of the eye must be more energetic than in any other form of the disease." (Wallace, p. 302.)

Directly after the system has been depressed by the loss of blood we must have recourse to astringent or specific remedies. Amongst these the one entitled to most confidence is the solution or pommade of the nitrate of silver. Dr. Ridgway employed it in the proportion of ten grains to the ounce, dropped into the eye at the very commencement of the disease. O'Halloran "had become dissatisfied with the antiphlogistic treatment, from having found it frequently either insufficient or injurious, and was hence led to use astringents, not only in the early stage of the disease, but when the purulent discharge and chemosis were fully established. He employed the sulphate of copper in substance, rubbing with it the inner surface of the eyelids after everting them, or he dropped into the eye the ten-grain solution of the nitrate of silver." (Lawrence, p. 44.) Mr. Lawrence says, "Destructive or injurious consequences have so frequently resulted under the usual management of this disease, that I should certainly employ the local astringent if I met with a case favorable to the trial; that is, where the affection had not extended beyond the conjunctiva." Mr. Lawrence subsequently mentions two cases where the astringent was successfully employed; in the latter after a large bleeding. (pp. 45-6.) Dr. Wallace recommends the application of the nitrate of silver after the abstraction of blood in sufficient quantity, "and when we have an opportunity of seeing the disease before the state of inflammation, this remedy should be employed without a moment's delay." After free depletion, Ricord recommends the eyelids to be everted, and the solid nitrate of silver to be passed over the surface of the palpebre, and afterwards more superficially over the ocular portion of the conjunctiva; after this the surface of the eye is to be cleaned by a syringe of cold water thrown over it, with a view of removing any portion of the salt that may remain upon the cornea. In the intervals of the dressings the eye is covered with a compress, soaked in a decoction of poppy-heads, and applied cold. M. Ricord recommends also the application of the extract of belladonna to the temples and round the orbits during the treatment, with a view of preventing any adhesions of the iris which commonly becomes affected, as well as other deep-seated structures of the eye. If the chemosis be great, Ricord recommends a portion of it to be removed with a pair of curved scissors, a measure of which Dr. Mackenzie speaks also in very high terms. If the inflammation do not yield speedily to large general depletions, M. Sanson, as we stated in our last Number, has resorted to the expedient of excising the secreting organs itself—the conjunctiva! He snips away with a pair of curved scissors all the salient portions of the membrane, and then cauterizes with the nitrate of silver the whole internal surface of both eyelids.

We think it perfectly useless, not to say criminal, in such cases, to waste the time, so precious to our patient, in administering the remedies looked upon as specific in gonorrhœa, as copaiva and cubeba, recommended by Dr. Wallace, and we are glad to find M. Ricord supporting this the true view of the matter. He says, "The anti-blemor-

rhœal remedies, properly so called, as copaiva and cubebs, have absolutely no action upon this disease, whatever may be their mode of administration."

We are not disposed to think very highly of the exhibition of mercury, so as to produce even its full action in this disease, and we think Dr. Wallace quite in error in giving it as an antisyphilitic. We have before shown the fallacy of Dr. Wallace's opinions on these points. Mr. Lawrence has seen gonorrhœal ophthalmia proceeding unchecked under the full mercurial action. Ricord expressly states that it is of no service, so also do Beer and Delpech. There is no objection to its use in the chronic forms of disease; but we lose time, and compromise the vision of the patient by placing any reliance upon it in the acute.

Those authors who support the view of gonorrhœal ophthalmia being produced by metastasis place great stress upon the restoration of the urethral discharge; it is also recommended in cases where this ceases during an attack of disease of this character. Swediaur, Richter, Beer, and Scarpa recommend the introduction of a bougie smeared with the discharge from the eye, or with gonorrhœal matter taken from another patient. In spite of the authorities of these names, we think their recommendation rather the result of preconceived theoretical notions than deductions from the results of treatment. Mr. Lawrence supports the latter opinion, and the modern writers of the greatest experience, as Ricord and Desruelles, agree with him. "If," says Ricord, "the discharge from the urethra is for a short time diminished, during an attack of gonorrhœal ophthalmia, it is never completely suppressed, and we can affirm, in spite of contrary opinions, that not the least benefit is to be expected from attempting to restore or increase it." (p. 763.) Swediaur, however, appears to have been successful in curing some chronic cases of this character by the restoration of the urethral discharge; but we cannot find in any late writer, neither have we ever seen, a case supporting the efficacy of this treatment.

Dr. Wallace thinks that the ill consequences which so commonly follow gonorrhœal ophthalmia, such as bursting of the cornea and discharge of the humours of the eye, protrusion of the iris, &c. may be prevented by evacuating the aqueous humour on the plan recommended by Mr. Wardrop.

"It has always appeared to me very probable that the sloughing and ulcerating processes, which so often attack the cornea in this form of ophthalmia, are owing principally to distension of the eyeball by effusion into its chambers, for sloughing or ulceration is not a usual consequence of catarrhal syphilis in other parts, unless when strangulation has occurred; and acting on this opinion, I have on several occasions, and apparently with very considerable benefit, adopted Mr. Wardrop's recommendation of puncturing the cornea to cause the escape of the aqueous humour, and the consequent diminution of the state of distension." (p. 302.)

We think these remarks very valuable, and the practice deserving repeated trials before it is finally rejected. Dr. Wallace's remarks are forcibly illustrated by Mr. Lawrence's sixth case, in which the eye literally burst from distension of this kind.

Mackenzie, Lawrence, Brodie, Ricord, and Wallace admit a true gonorrhœal inflammation of the iris. This generally occurs in scrofulous

patients labouring under gonorrhœa or gleet. Sometimes it succeeds to gonorrhœal inflammation of the conjunctiva or the sclerotic, or occurs with that peculiar species of rheumatism which sometimes accompanies a gonorrhœa. It very commonly alternates with affections of the joints, and an acute attack of synovitis frequently cures or very much relieves the inflammation of the eyes. The frequency with which this species of disease succeeds to mild gonorrhœal ophthalmia, and the facility with which adhesions of the iris take place, render it necessary that in the various forms of gonorrhœal ophthalmia we should adopt Ricord's plan of keeping the pupil dilated by the external application of belladonna. "This affection of the eye is exactly the same as rheumatic inflammation of the sclerotic and iris occurring independently of gonorrhœa. Both this and the mild purulent inflammation of the conjunctiva are to be regarded as rheumatic affections of the organ excited by gonorrhœa; that is, they take place in individuals in whom this constitutional disposition is shown by inflammation affecting either the synovial membranes or the fibrous structures of several joints." (Lawrence, p. 57.) Dr. Vetch, as well as the authors already mentioned, has given cases of this disease. In one instance the gonorrhœa was well marked and violent, and was succeeded by a swelled testicle; rheumatic inflammation of the joints and of the external proper tunics of the eye followed. They terminated in an irregular and contracted pupil, some opacity of the capsule of the lens, adhesions between it and the iris, and a considerable loss of vision. Generally, however, the prognosis is favorable and the disease very much more under the control of art than the more acute forms of purulent ophthalmia. "The gonorrhœal is generally more rapid in its progress than any of the other varieties of iritis, and is one of the most severe and formidable whilst it lasts; but it yields more promptly to decided treatment than any of the rest, and affords examples of perfect recovery, even when the aqueous chambers are filled with lymph." (Mackenzie, p. 476.)

The treatment must consist, in the onset, of general and local bleeding, suited to the urgency of the symptoms; calomel and opium, so as rapidly to affect the system, and the application of the extract of belladonna (Mackenzie). Our chief reliance must be on mercury united with opium and antimony, and if there exist a rheumatic state of the system, colchicum and turpentine will be useful (Wallace). Sir B. Brodie places great reliance on colchicum. As local applications, warm decoctions of poppy are generally most agreeable to the patient's feelings, on account of the intolerable pain that sometimes attends the disease. "When the inflammation is checked blisters may be advantageously employed, and the cure may be completed by the Plummer's pill, with mild aperients and regulated diet." (Lawrence.)

Primary Syphilitic Sores. The second class of these diseases are primary syphilitic sores, the "*maladies vénériennes primitives à forme ulcéralive*" of Desruelles; the "*affections virulentes*" of Ricord. In investigating the therapeutics of this class of venereal diseases, we do not propose to enter into the particulars of the comparative merits of the mercurial and simple treatment, but simply to indicate that best suited to the different varieties of primary syphilitic ulcers. Though renouncing an indiscriminate mercurial treatment, most modern surgeons, more particularly those of this country, look upon mercury as the most powerful and certain therapeutic agent employed in a vast majority of both the

primary and secondary forms of syphilis. "Is there any experienced senior of the profession who, having a son of eighteen or twenty, and that son having a chancre, that would treat him without mercury? No: there is not such an unnatural person." (Bell's Institutes of Surgery, p. 228.) Mr. Carmichael, instead of rejecting mercury altogether on the one hand, or coinciding with Sir C. Bell's sweeping dogma on the other, has wisely endeavoured to point out where mercury is admissible, and where it is not admissible in primary venereal sores. This seems also to be the aim of most modern writers on syphilis who have devoted particular attention to the enquiry. "Why," enquires Mr. Parker (p. 11), "is mercury to be employed in the treatment of primary syphilis? To hasten the cicatrization of the ulcer, and to diminish the risk of secondary symptoms." The first point is established by the practice of most modern surgeons, both British and foreign. Ricord, Desruelles, and Cullerier, all partisans of the simple treatment, recommend mercury when the sore is indolent, does not cicatrize under the simple plan, when its edges are hard and elevated, or the sore leaves behind it, in healing, an indurated cicatrix.

"If," says M. Ricord, "we calculate the cure of a chancre from the day the ulcer has cicatrized, without troubling ourselves about what may take place after, it will be sometimes apparently quicker by the simple treatment without mercury, and in the hospitals, the patients will be a less time under treatment; but if we date the cure at the period when all induration has disappeared, we shall find the difference enormously in favour of the mercurial treatment; the induration continuing in the first instance an indefinite period, and giving rise much more frequently to secondary or constitutional symptoms. I have recourse to mercury whenever a certain degree of induration accompanies a chancre, when it does not speedily cicatrize, or when the induration remains after its apparent cure." (pp. 578-9.)

From M. Bacot's summary it appears that secondary symptoms occur in the proportion of at least one in ten in those cases where no mercury has been given; whilst on the contrary, the proportion of such cases is only as one to seventy-five where that remedy has been employed. Mr. Carmichael admits that "mercury is an agent of great utility in some forms and stages of venereal diseases, when duly administered under sound pathological principles, and not blindly given as a specific." (Dublin Journal of Medical Science, No. 37, p. 118.) Mr. Carmichael exhibits it under the following circumstances: 1st. In cases of the simple primary ulcer, when this does not yield to rest, the antiphlogistic treatment, and astringent washes. After the third or fourth week, Mr. Carmichael gives mercury in alterative doses with the same views that he would prescribe it for any indolent ulcer which was not venereal. This ulcer, amounting to nine tenths of the cases we meet with in practice, is characterized by its want of induration and phagedæna. 2dly. When the papulæ and pustular eruptions become scaly, and obviously on the decline, about the fourth or fifth week, and not yielding to sarsaparilla or antimonials, mercury is given in alterative doses with sarsaparilla. 3dly. In iritis, so as to produce its full effects upon the system. 4thly. In cases of nodes with inflammation of the periosteum. In the phagedænic forms of primary syphilis, Mr. Carmichael believes mercury in all stages and forms of the affection to be a most deceitful and dangerous remedy. 5thly. For the primary sore, the Hunterian chancre, with

hardened edges and base, the "chancre induré" of M. Ricord, and for the scaly eruption which attends it, as well as the deep excavated ulcer of the tonsils, nodes, and other symptoms belonging to this form of disease, mercury, in full doses, may be esteemed a certain and expeditious remedy. M. Ricord, admitting as he does the uncertainty in which we still remain with regard to the particular kind of sore in which mercury should be exhibited, remarks that in this form the surgeon who omits the full mercurial treatment, ought to be considered responsible for the constitutional symptoms which are almost sure to succeed it. The testimony of Mr. Guthrie is pretty much to the same effect in cases of ulcers which had "the characteristic of chancre." In these instances, without the use of mercury, local applications of various kinds seemed to have little effect upon the sores, and they remained open for various periods, but all very long. "If they were ulcers without very marked appearance, and did not amend in the first fortnight or three weeks, they generally remained for five or seven weeks longer; and the only difference in this respect between them and the raised ulcer of the prepuce was that this often remained for a longer period, and that ulcers presenting the true character of chancre required a still longer period for their cure—that is, from six to eight, ten, or twenty, and even twenty-six weeks, healing up and ulcerating again on a hardened base." In this form of ulcer, Desruelles also admits the superior efficacy of mercury. When we are certain that no manifest cause of irritation interferes with the cicatrization of the sore, and that still remains indolent, a general mercurial treatment must be employed. "In these cases no medicine is so advantageous as mercury, and so marked are its effects, that we are tempted almost to regard it as a specific." (Desruelles, p. 506.)

The universal tendency of modern experience, then, is in favour of the mercurial treatment of this form of disease, and although this as well as the other forms of primary syphilis may get well without mercury, still the cure is uncertain and prolonged, and generally leaves behind it a hardened cicatrix, prone to ulcerate again. It is doubly important to heal this, as well as the other primary forms of syphilis, speedily, since it is incontestably proved that the risk of secondary symptoms occurring is in direct proportion to the period a primary sore remains open; a primary sore closing with a hardened cicatrix is certainly not cured.

Mercury should not be given during the state of fever or local inflammation which may be present during the first days of venereal ulcers, nor till the patient is prepared for it by an appropriate regimen. It is also generally improper to use mercury during the ulcerating stage of chancre: it must be abstained from till the sore has become stationary and indolent, or till it assumes a disposition to heal. If mercury be employed during the ulcerating, irritable, or inflamed condition of a chancre, it will most probably increase the inflammation, or "excite a state of irritable or indolent action, after which the system will become quite insensible to ordinary doses of this medicine; and if under such circumstances larger doses of mercury be employed, a peculiar and complex state will most probably result, determined in its character by the combined influence of the disease, the remedy, and the constitution of the patient, a state in which mercury acts as a poison, or in other words, not only aggravates all the symptoms, but perhaps excites a new train of peculiar morbid ac-

tions." (Wallace, p. 109.) Mercury may be employed by friction, or fumigation, or the proto-chloride, the bichloride, the proto-ioduret, the cyanuret, or the deuto-phosphate may be employed internally, in different doses and under various forms of combination. As we have not time to notice these, we refer the reader to Mr. Parker's excellent little work, which contains a full account of these remedies, the indications for their employment, and their mode of administration.

The Local Treatment of Primary Venereal Sores. Scarcely any two modern authors agree in their classification of primary sores, and hence we shall speak of those alluded to in the works before us after their pathological character, and not in conformity with the particular division of each writer under review. In this point of view primary sores resolve themselves naturally into a few species to which all those described by authors may be referred. These are: 1st. The simple primary sore, characterized rather by its negative than positive characters, i. e. by the absence of induration, irritability, or inflammation. 2d. The irritable. 3d. Those characterized by an excess of inflammatory action. 4th. The indurated, or true Hunterian chancre, the induration being a primary feature of the sore, and not being produced by the injudicious use of local stimulating dressings, "by the use of which," says Desruelles, "any primary sore may be made to assume the indurated character." 5th. Those spreading by rapid ulceration, or covered by foul sloughs of various colour and appearance. This variety being the ulcerative or sloughing phagedæna of the authors before us.

It will be necessary before speaking of the local treatment of chancre to repeat what has been said on the division of primary venereal sores into two periods—the first that of ulceration, and the second that of separation or cicatrization; the local remedies adapted to the first of these states being inadmissible and generally hurtful to the second.

In the majority of cases of simple primary venereal sores, during the first period, the nitrate of silver is the best application, and amongst the writers before us, Carmichael, Ricord, Wallace, Key, Parker, and Mayo support this practice. Ricord and Carmichael both state that the sooner an ulcer which secretes a morbid poison capable of infecting the constitution is healed, the more likely is the constitution to escape contamination. "When, therefore," says Mr. Carmichael, "a patient applied to me with an ulcer in its first stage, while yet excavated and secreting lymph, I instantly endeavoured to destroy its entire surface by a free application of lunar caustic; and I observed that when the eschar separated, I had in general the satisfaction of finding a simple sore instead of a poisonous one." (Dub. Med. Press, No. 67.) If the sore be much inflamed, the caustic is not to be used till the inflammation has been subdued by rest, aperients, general bloodletting if necessary, abstinence, and the mildest topical applications, as bread and water, or the turnip or carrot poultice, the liq. plumbi diacet. dilut., &c. &c.; should the ulcerative stage be passed, and granulations have sprung up under the treatment, which is sometimes the case, the nitrate of silver is of course to be omitted.

"Whilst a chancre continues in the state of ulceration, the application of the nitrate of silver must be repeated, waiting for the separation of the eschar produced by its application, to ascertain clearly the condition of the sore before we reapply the caustic. After the application of the nitrate of silver, the ulcer

should be covered with a piece of fine soft lint, spread with some simple ointment, over which may be placed a bread poultice, of fine linen moistened in the liq. plumbi diacet. dilut., and the whole covered with a piece of oiled silk, or Liston's isinglass plaster." (Parker, pp. 84-5.)

During the two or three days which are generally spent in the application of the caustic, the patient should be prepared by rest, regularity in his living, and mild aperients for any subsequent constitutional treatment that may be thought necessary. Mr. B. Bell has condemned the use of the nitrate of silver to primary sores, under the idea that it produced bubo, and Cullerier still supports this view. Mr. Carmichael, however, proves that this is not the case; and Sir G. Ballingall, after noticing Mr. B. Bell's statements, goes on to say "that of late years he has been in the habit of at once destroying the surface of primary sores with caustic, when of a limited extent, and this practice has been for the most part highly satisfactory; nor," continues Sir G. Ballingall, "could I be justified in saying that it has produced buboes in anything like that proportion which Mr. B. Bell's statements would lead us to expect." As local applications generally to primary sores, Sir G. Ballingall recommends anodyne fomentations, or cataplasms, or stimulating lotions, according to the character of the ulcer; of the latter he mentions particularly the diluted nitric or muriatic acids, solutions of the oxy muriate of mercury, or of the chlorurets of lime and soda.

All irritating or mercurial dressings are to be avoided during the ulcerating stages of chancre, and during the period that the sores are irritable or inflamed. Dr. Wallace states that the most appalling forms of syphilis which he has met with have been owing to the injudicious application of mercurial dressings to chancres in a state of ulceration, irritability, or inflammation. Mr. Carmichael's views correspond.

"Attacks of inflammation caused by neglect, imprudence, irritating applications, or the use of mercury, may so modify and alter the natural appearance of these primary ulcers, as to render it difficult to ascertain to which class they belong. Under these circumstances, instead of flying to the use of mercury, as is too frequently the custom, I would strongly recommend you to avoid the inextricable embarrassments and difficulties to which this rash step may lead you, and to be contented with directing antiplogistic measures to the necessary extent, mild soothing applications, and rest in the recumbent position, until all inflammation is removed; and then, and not till then, can you be competent to form any correct judgment respecting the true nature of the ulcer, and its appropriate treatment." (Carmichael, loc. cit., p. 253.)

Mr. Key thinks mercurial washes in the early stages of chancre are peculiarly noxious. The morbid action is rather increased than allayed by them, secretion being rendered more copious, and the ulceration more inclined to spread. Ricord condemns the use of ointments generally in the ulcerating stages of chancre; some remedies are employed by him, Cullerier, Desruelles, &c. in the French hospitals, which are found highly useful in the earlier stages of chancre; amongst these may be mentioned the opiate cerate, and the aromatic wine with tannin or opium. The opiate cerate is composed of an ounce of the vinum opii to a pound of adeps, and is very useful as a simple dressing to irritable primary simple sores; a strong decoction of poppy, to which may be added some of the extract of opium, in the proportion of eight grains to the half pint, may also be employed. Ricord's favorite dressing is the aromatic wine of the

French Codex ; this is made by digesting four ounces of aromatic herbs (rosemary, rue, &c. &c.) in two pints of red wine for eight days. In certain circumstances, two scruples of pure tannin are added to eight ounces of the wine ; and when a sedative application is wished for, half a drachm of the purified extract of opium. The patient is directed to wash the ulceration with these applications gently, without making them bleed, and afterwards to cover the surface of the sore with some fine soft lint moistened with the wine, without making it too wet. To these local remedies M. Ricord attributes the effect of hastening cicatrization, of diminishing the secretion of pus from the surface of the sore, and by their astringent properties, acting upon the surrounding tissues, of preventing the extension of the disease and the formation of fresh chancres, a circumstance very common with the ordinary modes of dressing.

The more mildly primary sores are treated locally, the less likely are they to be followed by those appalling complications which sometimes accompany them, such as rapid ulceration, sloughing, and disorganization of a great portion of the penis and scrotum, and which used to be so common under the old treatment of stimulating mercurial applications during the first days of chancres. We dwell upon this point because we deem it of the first importance : whilst we have almost the universal testimony of modern writers on syphilis in its favour, there are yet some surgeons of the present day in the very teeth of evidence the most convincing, as a glance upon the publications on our table would show, who adopt a sort of routine black and yellow wash system to primary sores of whatever character. To well understand the principles on which the local as well as the general treatment of primary sores must be conducted, the surgeon must constantly bear in mind the two phases of chancre, as established by Ricord and Dr. Wallace, and admitted by Mr. Carmichael and Mr. Key, and most modern writers. In the first stage we have to do with a specific sore, irritable, and poisoned, and poisonous, liable to be irritated by the least stimulus, whilst in the second we have a simple ulcer, destitute of all these characters.

"To the premature use of mercurial dressings, much of the troublesome career of primary sores may be attributed ; their injurious action is seen in the conversion of the surface into a yellowish mass, a change that usually indicates ulceration, an increase of secretion, a disposition to spread, and an increased degree of sensibility ; and as soon as these applications are replaced by astringents, the changes in the appearance of the sore show on what its previous condition depended. The same remark will not have escaped the experienced surgeon, in the influence of mercury, internally administered, on these sores ; and while they remain in the ulcerative stage, it should be sparingly given and cautiously watched." (Key, *Guy's Hospital Reports*. Oct. 1839, pp. 423-4.)

There are some forms of primary sores to which Mr. Key recommends mercurial dressings in the ulcerating stage. These he employs not as a general rule but as the exception, in sores indolent not sensitive, and secreting but sparingly. Ricord also alludes to this species of primary ulcer, which he describes as indolent and stationary, and in which the secretion is dried up ; in these circumstances the aromatic wine, with this exception almost universally employed by him as a general dressing, is to be abstained from, and the opiate cerate or emollient fomentations employed in its stead. We have been in the habit of treating this species of primary sore, which is frequently met with at the orifice of the urethra,

by washing its surface with a weak solution of the chloride of lime, and then dressing it with some detergent ointment.

The indurated primary sore demands a treatment both local and general, in some measure different from the ordinary forms of the disease. This, "the classic Hunterian chancre" of Ricord, the indurated primary syphilis of Dr. Wallace, is the form of primary disease for which every author on our list recommends a full mercurial treatment till the sore has healed without induration of the cicatrix. In our account of this species of ulcer, it must be recollected that we limit the expression "indurated" to an ulcer that is so from the commencement of the disease, and do not apply it to those sores which have become indurated from the repeated application of stimulating dressings.

This induration, the natural character of the sore being changed by irritating applications, Mr. Carmichael calls "setting a sore astray," from its regular natural history; and with respect to the particular kind of sore of which we are now speaking it is very liable to be so changed, hence Dr. Wallace says, "when the induration is not the consequence of common irritation from mismanagement." This point is also particularly insisted on by Desruelles. Local treatment is not generally so efficacious in ameliorating the condition of this as the other varieties of primary syphilis, the sore is not commonly much benefited except through the medium of the constitution. Ricord recommends as a dressing to the simple indurated chancre a pomade of calomel and opium. Dr. Wallace also countenances this under the regulations laid down for the treatment of primary sores generally. If suppuration is abundant, the sore is to be washed previously to the dressing with the aromatic wine; should the sore be irritable or inflamed and the ulceration disposed to spread, aqueous solutions of opium, anodyne fomentations, &c. must be used. The application of the nitrate of silver is not so beneficial in this as the other forms of disease, nevertheless both Ricord and Wallace advise its use. The former says "it modifies favorably the surface, and frequently arrests the spread of ulceration;" after the ulcerating stage has passed great advantage will be derived from the gentle application of the sulphate of copper. In the more decided chancre, i. e. the indurated sore of which we are speaking, Mr. Key thinks the "disposition to be set astray is less, and the syphilitic characters being more developed mercurial application agrees better with them, and may be applied with less apprehension of the ulceration extending. In these sores local mercurial action does not render the secretion copious; nor does it render the surface yellow, loose, and spongy, or the edge disposed to break up On the contrary, the edge becomes less raised and firm, but not disposed to extend by ulceration; the secretion is altered but not increased; the surface becomes more solid and fibrinous, and inclined to granulate." (Loc. cit., p. 424.)

Dr. Wallace gives some good diagnostic marks by which we are enabled to distinguish between the induration which is the natural attendant upon this species of sores and that which is produced in ordinary simple sores by the injudicious application of remedies. "We may always distinguish by the history of the case and by the character of the areola such indurated ulcerations as are connected with irritation or inflammation. Thus, if indurated primary syphilis be not attended by these morbid states it will not be surrounded by an inflamed but by a callous or

livid white areola, with or without a whitish line at the very edge or margin of the ulcerated surface; or else the skin surrounding the ulcer will present its natural appearance." (pp. 310-11.)

There is one symptom succeeding to indurated primary chancres, which sometimes occasions considerable anxiety to the patient and annoyance to his surgeon; this is "induration of the cicatrix." After the healing of a primary sore of this character the cicatrix remains hard and elevated, and is prone to ulcerate anew on the occurrence of the slightest exciting cause. Delpech, Wallace, Ricord, and Cullerier particularly allude to this induration of the cicatrix, which is considered to denote the persistence of syphilitic action in the system, and the "fore-runner of accidents to come." It has been proposed to destroy the induration with caustic or to excise it with the knife: both these methods are objectionable; the former frequently occasions foul and untractable sores, which Delpech terms "*l'état cancéreux*," and the removal with the knife commonly produces a new venereal ulcer more intractable than the first, which in healing may leave a fresh induration behind it. This is a sort of "*noli me tangere*" disease, which we must be very careful how we interfere with, at least with irritating topical remedies, as escharotics, blisters, or the knife. We seem to have no alternative but to follow the practice of Dr. Wallace, which is at best but a palliative one. "My conduct in this point of practice is to persevere with the use of mercury, provided it agree with the system, for at least ten days or a fortnight after the induration or contraction may have ceased to diminish; and whatever degree of these states may then remain I leave to the slow operation of nature, or to be removed at a future period by the knife, in case this should be desired by the patient, for the purpose of curing aphymosis or any other inconvenient deformity." (p. 313.)

The Phagedænic Ulcer. This is the most formidable and uncontrollable variety of primary syphilis. The cause of phagedænic is an interesting matter of enquiry. Desruelles, in the true spirit of Broussaism, attributes it to irritation of the viscera, a chronic gastritis, a gastro-enteritis. Ricord believes also that there is commonly an accompanying visceral irritation, but he believes, moreover, that a cold damp atmosphere disposes primary sores to become phagedænic. Mr. Mayo states "that what gives the phagedænic character to sores on the genitals after infection is some peculiarity of the general habit." This is perhaps true, but the difficulty is to know in what this peculiarity consists. We have sometimes seen inflammation, mortification, and death succeed the slightest scratches; and this is not uncommon in the draymen and porters of London, who consume large quantities of gin and porter.

Phagedæna is generally divided into the ulcerative and sloughing. Dr. Wallace has attempted a classification which he thinks "may be of some practical importance towards the discrimination and management of these frequently formidable diseases."

Phagedænic Primary Syphilis.

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| 1. <i>Without Slough.</i> | 2. <i>With White Slough.</i> | 3. <i>With Black Slough.</i> |
| A. Simple. | A. Simple. | A. Simple. |
| B. Inflamed. | B. Inflamed. | B. Inflamed. |
| C. Irritable. | C. Irritable. | C. Irritable. |

The local remedies best suited to the different varieties of simple phagedæna are the nitrate of silver, either solid or in saturated solution, applied with a pencil; the pure nitric or nitro-muriatic acids, the white muriate of antimony, or a saturated solution of the oxymuriate of mercury in alcohol. In the sloughing or foul varieties of the simple phagedæna, Ricord recommends as very serviceable alternate dressings of the aromatic wine and a detergent ointment: the surface of these sores may be washed frequently with strong solutions of the chlorurets of soda and lime.

In the inflamed variety we must employ rest, "general and local" bloodletting, emollient fomentations or lotions, and poultices, purgatives, antimonial, and abstinence. Ricord says he is very wary of local bloodletting in this or any other form of primary syphilitic sore. He condemns the practice so common in many of the French hospitals of applying leeches in the centre of the sore, which commonly occasions an extension of the ulcer in depth to the extent which has been divided by the bite of the leeches; there is also a paramount objection to their application in the immediate vicinity, which is the inoculation of the leech-bites by the secretion from the surface of the ulcer, which is most likely to occur, and the consequent formation of fresh venereal sores.

In the inflamed varieties of phagedæna with white or black slough Dr. Wallace thinks the application of the nitrate of silver hurtful, and in fact we should do well to observe what he says of its use in phagedæna generally, that used too long or repeated too often it will produce consequences in some respects as unpleasant as those which result from an overdose of mercury. In the inflamed phagedæna with or without slough a purely antiphlogistic treatment, with anodyne fomentations and poultices, is the safest practice; leaving the application of stimulants and caustics till all local and constitutional irritation has subsided.

The irritable phagedænic ulcer demands a local treatment different from that of either of the before-mentioned varieties. Ricord and Wallace employ the nitrate of silver, the liquor arsenicalis, or the strong nitrous acid. These, however, frequently dispose the ulceration to spread, particularly where the sore is surrounded by a diffused areola. When this is the case the opiate cerate or strong aqueous solution of opium may be employed, whilst this remedy should be given freely at the same time by the mouth. Amongst preparations of this character Dr. Wallace speaks highly of mercurial ointment with the ext. opii, a drachm of the latter to an ounce of the former, or the *mel rosæ* with laudanum. As a general application to these sores, in our own practice, we have succeeded better with turnip or carrot poultices than with almost any other form of remedy. There are, however, individual circumstances depending on the character of the sore, its degree of indolence, irritability, or inflammation, in which the remedies we have mentioned will find their application.

The writers before us are divided as to the propriety of the mercurial treatment in phagedænic primary syphilis, Mr. Carmichael agreeing with the French school in rejecting the remedy as most dangerous and deceptive in every variety of the disease. "The miserable mutilations and sufferings," he says, "which our soldiers endured in Portugal from phagedænic and sloughing ulcers, at the commencement of the Peninsular

war, by the exhibition of mercury, might have inspired the deputy-inspector of hospitals with a desire to obtain information on the treatment of venereal complaints from every source; for our army surgeons soon discovered that the *black lion* of Portugal, as the sloughing ulcer was termed, could not be tamed by mercury, and that without giving a grain of it the Portuguese practitioners knew better how to effect their object." Sir G. Ballingall, after an experience of many years, informs us in his recent work that he quite accords with Mr. Carmichael. Mr. Key, in his report of the primary syphilitic cases occurring at Guy's hospital, states that in the constitutional treatment of these sores mercury is wholly inadmissible. "It tends," he says, "to increase irritability, to lower the powers of the patient, and therefore to quicken the phagedænic action. Loss of rest, and the irritability of the arterial and nervous systems to which it gives rise, are the prominent points in these cases." We perfectly agree with these authors in condemning the use of mercury generally in phagedænic primary syphilis, yet we are of opinion, and the results of every day's experience confirm this opinion, that there are cases of this character frequently occurring in which mercury judiciously employed is our best remedy; and this is just the way in which Ricord views the question, when, in speaking of phagedænic chancres, he says (p. 573) "there are circumstances under which a mercurial treatment is followed by the best results, and this fact is constantly proved by the practice of those who avow the most deadly hatred to mercury." It remains, however, to be determined what are the forms of phagedæna in which mercury may be employed with advantage. Ricord thinks it impossible in the present state of science to point out with certainty what these circumstances are. If the disease continues to advance in spite of the usual remedies judiciously employed, as a sort of forlorn hope he has recourse to mercury, first in form of local application and subsequently by the mouth or friction. He is regulated in the continuance of the remedy by the effects produced, continuing it if the disease appears inclined to yield, or giving it up should it still continue to extend. Mr. Lawrence, whilst he condemns the indiscriminate use of mercury in phagedæna, believes there are circumstances in which it may be employed with advantage, though he, like Ricord, does not seem able to point out what these circumstances are. He states that it has often happened to him to see cinnabar fumigations employed as a local remedy in phagedænic ulcerations of the throat accidentally cause copious salivation, and that in many instances where he had seen this he had found that the local disease in the throat, as well as in other parts, proceeded very favorably; so that he would not lay it down as an absolute rule that mercury ought never to be employed in these cases in reference to its general effect upon the system.

We think Mr. Carmichael has written in too exclusive a spirit of partisanship when he condemns mercury as poisonous in every variety and form of phagedæna, particularly when he goes so far as to say that he would not even permit the use of a few grains of cinnabar as a fumigation, for fear of mercurializing the whole system. The recorded experience of most modern writers on syphilis, to whatever school they may belong, proves that there are constantly occurring cases of phagedæna so intractable under the ordinary treatment that mercury is fled to as a

last resource, and there are many of these in which it is perfectly successful. "Nor must it be denied," says Mr. Mayo, "that occasionally a short and brisk course of mercury will give a new turn to the complaint and cause these troublesome sores at once to close. This remedy, however, should be last resorted to." (p. 20.)

Dr. Wallace has endeavoured to discriminate between those forms of phagedæna in which mercury should be used and those in which it should be abstained from: he believes that all the varieties of phagedænic primary syphilis have hitherto been very much confounded together, to the injury of the patient and the confusion of the practitioner. Dr. Wallace's classification of these sores is not founded on the incipient or primary character of the sore, but upon the appearances it may assume during its course, which evidently depend on constitutional causes; the chief divisions being founded upon the degree of irritability or inflammation attending a primary sore, or the character of the slough with which it may be covered; this will be seen by referring to Dr. Wallace's table already quoted. In the first variety of phagedæna, the simple primary sore without slough, characterized "merely by an unusual persistence or activity of the specific action attendant on the ulcerative stage of primary syphilis," Dr. Wallace thinks mercury almost indispensable, and recommends the patient to be brought as quickly as possible under its full influence. "But," he adds, "if the patient has been dabbling with mercurial remedies, and if there be reason to suppose that his constitution has been in consequence more or less disordered, we shall act more judiciously by suspending for a time the use of mercury, and endeavour by proper measures, but principally by attention to the mode of living of our patient and by the use of the mineral acids with sarsaparilla, to restore the system to a state of tranquillity before we enter again on mercurial treatment; which may, however, be then used with success." (p. 137.)

In the inflamed variety of simple phagedæna the first indications are the reduction of the inflammation according to the principles already laid down. Mercury may be used at the discretion of the practitioner, when the ulcer has put on the reparative process, in the way before recommended for simple primary sores.

In the irritable variety of simple phagedæna without slough, mercury is to be interdicted. Dr. Wallace believes that in this form of the disease the remedy is always injurious, and if persevered in produces an increase "of irritability local and general, and hectic and secondary symptoms of a very unmanageable kind may result." In this form conium, hyoscyamus, opium, and Dover's powder, but more particularly opium, locally and generally, are the chief remedies to be relied on, with sarsaparilla in conjunction with the iodide of potassium, or the mineral acids, or Mr. Carmichael's favorite remedy, the cold compound or simple infusion of sarsaparilla in lime water. It is in these cases that Mr. Lawrence also thinks sarsaparilla most beneficial. In the three forms of phagedænic syphilis without slough, Dr. Wallace recommends a full course of mercury in the first or simple form; an active antiphlogistic treatment to precede the mercurial treatment in the second or inflamed variety; and measures calculated to tranquilize the system in the third or irritable.

In the "simple phagedænic primary syphilis with white slough," Dr. Wallace recommends mercury to be freely exhibited, "wherever it may be seated and of whatever extent it may be." With the constitutions, however, in which this sore occurs mercury is very apt to disagree; and although the disease may be influenced beneficially and the remedy properly administered may quickly excite such sores to separate their sloughs and cicatrize, a prolonged use of the remedy commonly induces a state which Dr. Wallace calls "febrile mercurial irritation:" and if mercury be continued after this condition of the system has been induced the sore soon becomes "stationary and sensitive," and afterwards "painful and spreading," whilst secondary symptoms of a malignant character frequently set in.

This species of disease is particularly liable to occur at the orifice of the urethra, or just within the opening of the glans; and we have seen cases characterized to the patient on the onset merely by a sanious discharge from the urethra where this passage has been speedily perforated and the glans partially or totally lost. We would impress upon the surgeon the necessity of examining the urethra in all discharges from it of this kind, since in many instances, two of which are now under our own care, these discharges are from the surface of the white phagedænic chancre seated just within the orifice of the urethra. Dr. Wallace alludes to cases of this kind, p. 157.

The characters of the "inflamed phagedænic primary sore with white slough," are a slough of white colour at the junction of the sore with the living parts, which parts are in a state of inflammation. The distinctive character of the sore is to be drawn from the colour of the slough at the junction of the ulcerative with the living parts, and not from the colour of the slough on other parts of the sore, since these occasionally become black or green from the exposure of the surface to the atmosphere. The first indication in the treatment of this sore is the reduction of the inflammation by an active antiphlogistic treatment, employed, according to the circumstances of the case, generally and locally. We would beg, however, the attention of the reader more particularly to the point we are now endeavouring to make more clear; viz. the indications for the use of mercury in the different forms of phagedæna; and with respect to the sore under notice Dr. Wallace states that he has ascertained "an important fact,—that mercury, if given in full doses, or so as to produce rapidly its effects on the system, will control, even in its most inflamed state, the progress of the phagedænic disease just described." (p. 168.)

Dr. Wallace "does not mean to say," that this practice should in all cases be ordinarily adopted, but believes that in many cases it will afford the chief if not the only protection to the patient when the disease is making havoc amongst parts of great importance. When employed in this form of disease it must be combined with an antiphlogistic general treatment, as general and local bleeding, and nauseating doses of antimonials. In support of this position Dr. Wallace adduces a case of obstinate and destructive inflammatory phagedæna. In this instance "much time had been spent in fruitless endeavours to control the progress of the disease," the usual remedies had been tried in vain, till the prepuce was lost, with part of the glans, and a large portion of the covering of the testicles. So great was the attendant irritability and

inflammation that mercury "was the last remedy one would have ventured to try." The patient was importunate, and threatened to leave the hospital if mercury were not used. Large alterative doses had been employed without effect; it was now given in full doses: "his mouth was made very sore, and the progress of the disease was not only controlled but almost entirely stopped." Dr. Wallace noticed that "wherever the disease had been extending by a white slough, there or on such parts, though inflamed, the mercurial treatment had acted most beneficially; but that, on the contrary, at some points, where the sore was extending by a black slough, its progress remained uncontrolled or rather aggravated." (p. 170.) Dr. Wallace is not satisfied with the degree of inflammation surrounding a primary sore as a rule for the non-employment of mercury, and founds his opinion upon the value of mercury freely administered in syphilitic iritis, and upon the fact that mercurial fumigations, in certain destructive sores of the throat, are frequently very beneficial, although attended apparently by great inflammatory action. The result of Dr. Wallace's experience in the employment of mercury in these cases has led him to establish a rule to which we are disposed to attach very considerable importance: "That although that form of inflammation which supervenes when a patient is under a mercurial course is sure to be aggravated by persisting in the use of mercury, this remedy will powerfully assist to subdue inflammation which commenced under different circumstances." (p. 175.)

In the "irritable variety of phagedæna with white slough," Dr. Wallace also thinks a short but full course of mercury the best remedy, if the case have not been previously mismanaged. When it is used it must be very carefully watched, and combined with large doses of opium, Dover's powder, cicuta, hyoscyamus, sarsaparilla and the carb. of ammonia, whilst the local treatment must be anodyne and unstimulating. All the forms of phagedæna with white slough are, in the opinion of Dr. Wallace, favorably influenced by mercury. He considers this form of disease to be the result of inordinate action, "syphilis in an acute form, modified by peculiar states of constitution." These peculiar states of constitution, of whatever nature they may be, must render the surgeon circumspect in the employment of mercury, particularly in the outset of the disease, or as a specific remedy; but where the ulceration spreads with rapidity, uninfluenced by the general treatment, and threatens the loss of important parts, mercury must be used; but, says Dr. Wallace, "until our path be more clear we shall run much less risk, in doubtful cases, of doing mischief by refraining from than by employing mercury." (p. 179.)

The "simple primary phagedæna with black slough" of Dr. Wallace is analogous to the sloughing ulcer of M. Bacot, and is evidently merely a variety of the true Hunterian chancre, an indurated primary sore with a dark or livid coloured slough. Its characters are "much greater induration of the surrounding parts than any of the other forms of primary phagedæna, scarcely any inflammation, and attended by very little sensibility." Dr. Wallace states that it requires directly any other form of treatment than the regular primary disease. It is often very much benefited by the internal employment of the nitrous or nitro-muriatic acids; but "the actions of reparation and perfect cicatrization may be produced

in it with much more certainty, in a much shorter time, and with less expense to the constitution, by a mild and well-regulated course of mercury than by any other means." (p. 185.)

The disease, however, generally occurs in constitutions very susceptible of the mercurial influence, and hence the exhibition of the remedy requires more caution in its management than in the simple primary sores. Dr. Wallace thinks that great advantage will be derived from the occasional interruption of the medicine and from substituting during its omission remedies that are calculated to improve the general health and tranquillize the nervous system.

The two remaining forms of phagedæna are the inflamed irritable varieties with black slough, the sloughing phagedæna of authors generally, the gangrenous ulcer of Mr. Bacot, and the "chancre phagédénique gangreneux" of Ricord. In these forms all writers agree in condemning the use of mercury; the disease is to be treated on the principles which should regulate us in the management of similar diseases arising from causes not syphilitic.

It must be recollected, however, when the sore has been brought to granulate and heal by proper remedies, that it has had a venereal origin, and perhaps has succeeded to a regular primary sore, rendered gangrenous by irregularities and bad management, and that it may be followed by secondary symptoms. "It is more than probable," says Mr. Bacot, "that secondary symptoms will not ensue, and if they should it will be time enough to arrest them when they appear. But it is, I think, not only fair towards the patient but prudent to explain to him the probabilities of the case, that his attention be awakened by any deviation from his usual state of health, and that no time be lost under a mistaken view of his condition."

In concluding these notices of the employment of mercury in different forms of primary syphilis, we beg impressively to call the attention of our younger readers to Boerhaave's remark "that he knew of no remedy but what became so by proper employment," and to that of Sir G. Ballingall, that "in the hands of a judicious practitioner mercury will fulfil a number of different and apparently contradictory indications; in the hands of ignorance, temerity, or indiscretion it will do more harm than good." (p. 438.) It certainly must be used in a truly eclectic spirit, and not in conformity with the exclusive spirit of partisanship, or the dogmas of this or that school.

The work of Lucas Championnière, which contains an account of the views of Cullerier, and the practice adopted by him at the Civil Venereal Hospital, Paris, has some valuable remarks on the pathology and treatment of chancres in the female, and with a notice of these we shall conclude our account of the views of modern authors on "primary syphilis." M. L. Championnière begins by remarking that all that has been hitherto written on the contagion of syphilis before the discovery of the speculum and its application to the examination of the deep-seated portion of the vagina and the neck of the uterus is to be considered as perfectly valueless, since the disease in the female which contaminates the male is much more frequently seated on the neck of the uterus than on the external parts. There are constantly presenting themselves at the venereal hospital females who have no trace of disease on the external parts, but who

apply for assistance because they have produced disease in healthy men who have cohabited with them. On examination with the speculum these females are found to suffer from different forms of disease of the neck of the womb which is not manifested by any external sign, or in fact by any symptom whatever. These facts noticed by M. Cullerier corroborate Dr. Ferguson's oft-told tale of the Portuguese opera-dancer. The affection of the neck of the womb presents numerous forms, all of which M. Cullerier thinks are capable of producing ulcers of the penis from cohabitation. In the first form the neck of the uterus is red, swollen, and hypertrophied, but not in a state of ulceration. If erosions exist, says M. Cullerier, they are so slight as not to be perceived by the naked eye. The state of the neck of the womb in this variety of complaint, resembles very much that of the glans penis in balanitis or external gonorrhœa. More frequently the neck is covered with ulcerations, more or less numerous and more or less deep, from which oozes a virulent sanies. M. Cullerier thinks these are true chancres. They resemble chancres of the penis, in their history, their duration, and more particularly in the fluid they secrete. Occasionally M. Cullerier has found the true indurated chancre upon the neck of the womb, though this form is not so commonly met with as the other varieties. We shall not follow M. Cullerier through the treatment he recommends for primary sores in this situation. They are to be dealt with in the same manner as primary venereal sores generally, the situation in which they occur is the only circumstance which can in any respect modify the treatment, and hence it is almost impossible to cure them properly without the occasional use of the speculum to separate the parts for the purpose of cleaning them thoroughly by injection, or applying any local remedies the nature of the sores may require. M. Cullerier states that the situation in which these sores occur renders their speedy cure very difficult, and whilst chancres on the penis are generally healed in two or three weeks, these diseases of the neck of the womb commonly require as many months. M. Desruelles corroborates also Cullerier's statements of the frequent existence of true venereal sores on the neck of the uterus. In the deep-seated parts of the vagina chancres are rare. These chancres may exist as we have before shown an indefinite period of time without producing constitutional symptoms, and without the patient being aware of their existence.

In the excellent memoir of Dr. Hauck, most of the conclusions of the French authors relating to the primary syphilitic affections in the female are corroborated by the results of his own experience; and the absolute necessity of the speculum in the diagnosis and treatment of these cases is clearly demonstrated.

II. CONSTITUTIONAL SYPHILIS. The phenomena of constitutional syphilis are divided by M. Ricord into secondary and tertiary, a division which in some measure harmonizes with the ideas of Hunter developed in his account of the first and second order of parts affected in lues venerea. M. Ricord thinks that the reason why the treatment of this disease is commonly so uncertain and unsatisfactory is because its natural history is not clearly understood; hence the necessity of dividing syphilis into different stages, all of which are perfectly distinct from each other in their pathology, their phenomena, and the parts of the body in which they make their appearance. A distinct treatment is, in M. Ricord's

view, to be framed for the management of each of these varieties, the remedies which are useful in one stage being comparatively inert in the others.

Primary syphilis may be succeeded by a series of affections which are termed by Ricord "successive," but are not truly secondary. Such are the diseases which result from the simple extension of the primary local disease, and of this character are fresh chancres, abscesses simply inflammatory or virulent, and buboes partaking of the like distinction.

Secondary symptoms, or those of general infection, arise when the venereal virus has undergone some degree of modification by being mixed with the blood and thus producing what M. Ricord terms the "syphilitic temperament." The diseases which may properly be termed secondary seldom occur before the end of the second week after the appearance of the primary disease, more commonly, however, they appear about the fourth, sixth, or eighth week, and commonly at a much later period than this. Secondary syphilis attacks the skin, the mucous membranes, the eyes, the testicles, &c. The great peculiarities to be observed in these forms of the disease are that they are not capable of being transmitted by inoculation, but from parent to child by hereditary taint. These "secondary accidents" of Ricord correspond to Hunter's first order of parts affected in "lues venerea," which he states to be the skin, tonsils, throat, inside of the mouth, and sometimes the tongue.

Tertiary symptoms appear at an indeterminate period, succeeding the primary disease, but commonly not till a long period after this has been cured, and in a majority of instances not till after secondary symptoms have appeared, or whilst they are still present. The tertiary symptoms are nodes, tubercles of the skin or cellular tissue, periostoses, exostoses, diseases of the bones and fibrous system generally, and many internal affections not clearly defined. The tertiary symptoms are neither capable of propagation by inoculation nor of transmission by hereditary taint—at least under any specific form of venereal affection. The tertiary symptoms are analogous to Hunter's affections of the second order of parts, which consists of the periosteum, fasciæ, and bones. It is in this latter class of affections that M. Ricord thinks the iodide of potassium so worthy of confidence.

Before entering into the consideration of the treatment, properly so called, of the constitutional forms of syphilis, M. Ricord devotes a short chapter to the examination of the question of the preventive treatment, remarking that it is against this that our care should chiefly be directed, since the primitive diseases are comparatively easy of cure by various remedies, and sometimes disappear spontaneously.

M. Ricord believes the probability of the occurrence of secondary symptoms to be in some measure in proportion to the time that the primary sore remains open. He has never seen a case in which the primary sore healed in five days has been followed by secondary symptoms; hence, says M. Ricord, the best rule that can be given for the prevention of secondary symptoms is the radical cure of the primary disease, without induration of the cicatrix, in the shortest space of time possible. And for this purpose he speaks with more confidence of mercury than of any other remedy, but considers it valuable rather as a remedy calculated to cure the primary disease than to prevent the secondary.

If there is any kind of treatment calculated more than another to favour the appearance of secondary symptoms it is that which has not radically cured the primary disease. M. Ricord thinks that all persons are not susceptible of secondary symptoms, and he states that the occurrence of the latter is favoured by peculiar idiosyncracies, not well defined. Sudden changes in the accustomed mode of living of the patient or his habits generally, pregnancy, the critical period of life, gastric disturbance, habitual irritation of the throat, mouth or skin, scrofula, &c. M. Ricord specifies as causes predisposing to the occurrence of secondary affections: hence, in addition to the radical cure of the primary symptoms, our second grand principle is attention to the general health.

It will be quite unnecessary to follow M. Ricord through his account of the general treatment of secondary syphilis. The general remedies are included under the heads of antiphlogistics, diet, baths, the state of the *primæ viæ*, and some other points of minor importance. In reference to these heads, as to most others, M. Ricord is purely eclectic in his practice. Attached to no particular school or dogmas, he states merely what remedies have succeeded best in the vast number of patients he is called daily to treat. Apart from any specific treatment in the management of secondary syphilis, he adopts that general system of hygiene which agrees best with his patient. We agree with him, however, in thinking that no specific rules can be laid down; they must be left to the discretion and judgment of the surgeon.

It is to a mercurial treatment in confirmed constitutional syphilis, says M. Ricord, that we must give the preference, provided there are no contraindications. The deductions made by M. Humbert from the results of M. Bielt's practice at the hospital St. Louis are,—That of all remedies mercury is the most efficacious in curing constitutional syphilis which exists without acute inflammation, but that it is better abstained from in irritable subjects feebly constituted. It cannot be denied, continues M. Humbert, that the preparations of mercury cure confirmed secondary syphilis more frequently than any other remedy. Mr. Mayo says, "of the remedies for constitutional syphilis, mercury is so far the most important that it is the only one, however rarely it may be necessary to use it with this object, through which the immediate extinction of constitutional lues can be anticipated; and that besides as a repellent of the disease, it is one of the most efficacious." (p. 61.)

The preparation of mercury chiefly employed by M. Ricord in the treatment of constitutional lues is the proto-ioduret, the hydrargyri iodidum of the London pharmacopœia. He commences with one grain for a dose, combined with opium, and carries it as far as six in the day, but does not exceed this quantity. Cullerier prefers the iodide in the constitutional forms of the disease, administering it, at the venereal hospital, in the proportions of half a grain night and morning, combined with opium and guaiacum. In Bielt's hospital, the St. Louis, the bichloride is generally preferred in very small doses, and this was Dupuytren's favorite remedy.

A certain degree of restlessness or irritability generally accompanies constitutional syphilis, which is so much benefited by opiates that M. Bielt's practice has constantly furnished numerous cases where these affections have disappeared under the influence of opium alone, uncom-

bined with mercury. The same views are supported by Ricord. Cullerier states "that opiates possess very marked anti-syphilitic properties, and even administered alone have produced some very remarkable cures." The term anti-syphilitic is clearly not to be understood in this sentence in a specific sense, but there can be no question of the vast utility of opium, used both generally and locally, in all forms of the venereal disease. Dupuytren was in the habit of using the bichloride combined with the extract of aconite with the same view.

Wallace, Ricord, Cullerier, and most other surgeons have lately employed the iodide of potassium largely in the various forms of constitutional syphilis. Ricord (*Gazette des Hôpitaux*, March, 1839,) has established that its results are most happy in the tertiary forms of disease, in affections of "Mr. Hunter's second order of parts," in which he considers it the remedy "par excellence." Iodine of itself is a powerful anti-syphilitic, but, unless in a state of combination with mercury, is inadmissible in the treatment of the simple primary forms of disease. The iodide of potassium is chiefly employed by Cullerier in chronic syphilitic affections of the testicles, and of the inguinal and cervical glands, also in cutaneous affections and diseases of the fibrous or osseous systems which are of syphilitic origin. M. Cullerier thinks the effects of the iodide of potassium are less prompt than those of mercury, and hence when the stomach bears it well it requires a longer employ. He exhibits one grain of iodine with from two to four of the iodide of potassium dissolved in one ounce of water, and given at intervals in any convenient vehicle during the day. He does not increase the quantity of iodine beyond two grains in the day, nor that of the iodide of potassium beyond ten.

The most complete account of the mode of administration of the iodide of potassium and its effect on different forms of constitutional syphilis is that given, from the results and experiments made by Ricord, in the *Gazette des Hôpitaux*, for March 19, 1839. M. Ricord employs the iodide of potassium in gradually increasing doses, commencing with ten grains dissolved in three ounces of distilled water, and given at intervals during the day in any convenient vehicle. This quantity may be increased or diminished according to the effects produced; when the remedy agrees, which it most commonly does if the stomach be healthy, the dose is increased ten grains every two or three days till it is carried to a drachm, a drachm and a half, or even more, in the course of the day. The iodide of potassium, in full doses, occasions a sensation of warmth in the stomach, improves the appetite, accelerates digestion, and quickens the pulse; a common and almost constant effect is a great increase in the secretion of urine. Sometimes it produces a ringing in the ears, a slight pustular eruption or diarrhoea. When these occur the dose must be diminished or the remedy abandoned altogether for a few days, till these symptoms have passed away: its use is then to be recommenced in smaller doses than before. In the great number of patients who have been treated by M. Ricord, the beneficial effects of the iodide of potassium have been constant but not produced with equal rapidity. In this respect there has been considerable variation. We do not agree with Mr. Mayo that "no medicine, where it does good, produces amendment so speedily as the iodide of potassium."

M. Ricord mentions the syphilitic deep-seated tubercle as the first

disease in which he has extensively tried the iodide with success. The original seat of these tubercles, Mr. Babington says, is in some structure below the surface of the cutis, probably in the sebaceous glands. Ricord speaks merely of this disease as deep-seated tubercle; it belongs to his third order of parts, is prone to inflame and ulcerate, and terminate in the formation of foul, spreading, destructive sores. Before the tubercles have become inflamed or softened, whilst they are still indurated, M. Ricord has constantly succeeded in dispersing them by means of the iodide of potassium with small doses of the iodide of mercury. He employs the iodide of mercury in one grain doses, with three, four, or five of the *ext. conii*, and the iodide of potassium in gradually increasing doses. The mercury is rarely continued for a long period, and very commonly M. Ricord makes use of the iodide of potassium alone. When the tubercles have become ulcerated M. Ricord still relies upon the iodide of potassium as his principal remedy. The local treatment, however, is of great importance, and must be directed under the views which would regulate us in the management of primary venereal sores.

M. Ricord thinks that mercury is generally inefficacious in the tertiary forms of syphilis. M. Bielt has found in his extensive opportunities for observation, that mercury did not produce any marked effect over the syphilitic tubercula. He mentions some cases treated successfully by the arseniate of soda. Mr. Mayo alludes to a case in which mercury was given without any benefit. (p. 88.) Mr. Parker's work contains an account of the local remedies to be employed in the ulcerating forms of the "tubercula." (pp. 141-6.) From the extensive trials made by Ricord, no remedy appears to have been so generally useful as the iodide of potassium.

The tubercular forms of syphilis commonly occur in conjunction with very considerable disorder of the general health, and it is scarcely necessary to notice again the stress laid by all the authors before us on the propriety and indeed absolute necessity of attending to this before any specific treatment is adopted. On this point M. Ricord has some admirable remarks, (p. 615.) When the secondary forms of constitutional syphilis occur without complication in a good constitution not previously impaired by other diseases or weakened by improper treatment, a specific treatment may be at once adopted, and the cure is commonly easy and quick. When constitutional syphilis is complicated the complications should never be neglected; if it occur in conjunction with acute affections the treatment of the latter ought to be our first care, with the view of reducing the venereal affection to the simplest form possible. If chronic diseases, as those of the skin or the viscera, are found in connexion with it, the syphilis should first be treated, taking care that the special treatment of the latter be so framed that the concomitant disease, of whatever character it may be, is not aggravated by it. "Exclusive treatments," says M. Ricord, "to whatever doctrine they belong, are the least likely to succeed."

Amongst other forms of disease more particularly benefited by the iodide of potassium, M. Ricord mentions nocturnal pains in the bones, and diseases of the bones and periosteum. With respect to the former, when they have been fugitive they have generally yielded to the iodide: when localized for a longer or shorter period this remedy, in conjunction

with blisters over the affected parts, has most commonly succeeded. M. Ricord believes nocturnal pains in the bones to result from a true inflammation of the osseous tissue, from syphilitic taint, and hence he considers these pains as the first symptoms by which such disease is characterized. These pains are commonly attributed to the prolonged or excessive use of mercury, but M. Ricord frequently meets with cases of diseases of the bones and periosteum in various stages at the venereal hospital in patients who have not taken a grain of mercury, and who have had chancre as a regular antecedent of the disease. Here, as in syphilitic caries, M. Ricord relies chiefly upon the iodide of potassium; he believes that mercury is generally injurious, at least he has abandoned its use, and succeeds better with the iodide. The iodide of potassium merits, in M. Ricord's view of its properties, in the treatment of the tertiary forms of syphilis, all the confidence that mercury has obtained in the treatment of the secondary, to which forms M. Ricord considers the iodides of mercury are particularly adapted.

It now only remains for us to notice briefly the merits and tendencies of the several works which have furnished the materials for this article.

The first in place as well as in character is the volume of M. Ricord. M. Ricord is one of the surgeons of the Parisian Civil Venereal Hospital, and the monograph under notice must be considered as the result of the experience acquired by him in this extended field of enquiry. The work is divided into three parts: the first is devoted to the literary history of inoculation in syphilitic diseases given above; the second contains a detailed account of the cases from which the deductions have been made, and also the treatment adopted in each case, so that this part of the work is moreover a clinical report under the heads of chancre, gonorrhœa, buboes, and constitutional diseases; the third is a summary of the treatment which M. Ricord has found most successful at the venereal hospital and in his own private practice. This last division is worthy of the more confidence since it is purely eclectic; M. Ricord having no therapeutical dogmas to support, he is a partisan of no particular school, and both simple and mercurial treatments are adopted by him under the circumstances in which each is the most likely to be followed by success. Many of the points established by the researches of M. Ricord tend to confirm the doctrines which Hunter taught. Of this character are the proofs pertaining to the non-propagation of the secondary forms of syphilis by inoculation. The pathological division of venereal diseases which M. Ricord has proposed, of the primary, secondary, and tertiary forms, seems founded on the original idea of Hunter. On this point, however, M. Ricord has added much to the natural history of the disease; and, what is of perhaps more importance, he has shown that certain remedies are better suited to one stage than others—in other words, that each of the forms has in some measure its separate mode of treatment: here he has distinctly pointed out those varieties of the disease in which the iodide of potassium is most useful, and again others where mercury is most likely to succeed. M. Ricord has first clearly shown that the discharges from the urethra are sometimes indicative of a chancre seated within this canal: this has also been admitted by his colleague Cullerier, and suspected by Dr. Wallace; but the event of having clearly explained the

existence and differential diagnosis of the "chancre larvé" is due to M. Ricord. We recommend M. Ricord's work to all interested in the treatment of syphilis, as the best treatise on the disease since the days of Hunter, and in all respects worthy of the confidence of the reader.

The work of M. Lucas Championnière, contains a full account of the practice of M. Cullerier, senior surgeon to the Civil Parisian Venereal Hospital and colleague of M. Ricord. M. Cullerier's practice is also an eclectic one. Although leaning towards the opinions of the non-mercurialists he admits, what most of them deny, the existence of a special venereal virus. The exposition of the practice of M. Cullerier in the work before us is made under two grand sections, the first consisting of general views of the nature of the disease and its treatment, with a *coup d'œil* of the inconveniences of the mercurial treatment; and the second division giving the special indications for the employment of different remedies; amongst these are particularly mentioned mercury, iodine, gold, platina, opium, decoctions of the woods, the carbonate of ammonia, and antimony. These special remedies, the indications for which are pointed out by M. Cullerier and the different forms for their administration given, are to be used under the influence of a general treatment, the chief agents in which are confinement to bed, a low diet, bleeding, aperients, and the warm bath.

We have not space enough to follow M. Cullerier through the various details of his practice. The work contains many valuable observations, and generally it may be said to advocate a mixed or modified mercurial treatment.

As in what has been hitherto noticed in the authors under review, we have not said anything of bubo, we shall take this opportunity of mentioning M. Lucas Championnière's account, given in the volume before us, of the plan adopted in the venereal hospital of treating buboes with blisters and a strong solution of the bichloride of mercury. This plan, originally proposed by M. Malapert, a French army-surgeon, consists in applying a small blister over the centre of the tumour, the next day removing the epidermis which has been raised by the blister, and applying a small compress over the denuded surface, soaked in a solution of the bichloride of mercury in the proportion of twenty grains to the ounce, this compress is kept in place by straps for two hours and is then removed; at this period an eschar involving the skin to a greater or less depth is formed, which on separating leaves the bubo very much diminished in size, and is generally followed by its total disappearance. After the eschar has been formed, the swelling may be covered with a cold lotion or poultice. This plan of dispersing a venereal bubo has now the sanction of very great experience drawn from its successful employment in the French army, and for seven years in the great Civil Venereal Hospital under the direction of Cullerier and Ricord. Cullerier speaks in very positive terms of this remedy from his own observations of its utility, and it remains for us merely to indicate those circumstances in which it is most likely to succeed. It is well known that the sympathetic bubo, succeeding to gonorrhœa, is not so prone to suppurate as that following chancre, and here M. Ricord prefers attempts at dispersion, to be made first by pressure with the ammoniacum and mercury plaster; if these do not quickly accomplish their object, or the tumour tend to

increase, the blister with caustic is used. In all forms of the venereal bubo, except where matter has actually formed, or the surface is very much inflamed, it may be employed. Resorted to early in the disease, Cullerier states that he does not recollect seeing it fail in producing a total dispersion of the tumour.

The new edition of Dr. Wallace's work, bearing date 1838, is a mere reprint; but as some opinions there given are defended by him in his lectures in the *Lancet* in 1836-7, we presume they have undergone no alteration. This volume notices only the primary forms of syphilis, which Dr. Wallace divides into the simple, the phagedænic, the superficial, the catarrhal, the indurated, the annular, and the fungoid primary forms of disease; it also includes bubo. Some valuable practical remarks are to be found scattered all through the volume, particularly on the treatment of simple primary sores. Mercury is too indiscriminately recommended by Dr. Wallace, who employs it in every form of the primary disease, not excepting gonorrhœa (which is Dr. Wallace's catarrhal syphilis), and some forms of irritable or inflamed phagedæna. The practical surgeon, however, may study this volume with much advantage.

Mr. Mayo's little work is not a complete treatise on syphilis, but a reprint, with some additions, of his lectures on this subject which have already appeared in the *Medical Gazette*. The greater part of the volume is devoted to the constitutional forms of disease. The general plan of treatment recommended is a modified mercurial one. Mr. Mayo has used the iodide of potassium in many cases, the results of which have borne out what modern experience has already made known in reference to the beneficial effects of this remedy.

We noticed Mr. Parker's little work in our last Volume (p. 239); and would not have referred to it here but from the use we have made of its contents in the present article. It is purely eclectic as regards modern theories and practice in syphilitic diseases. Mr. Parker advocates a modified mercurial treatment, but shows at the same time that mercury is most successfully administered in accordance with the tenets of the simple treatment. The first section is devoted to an account of the non-specific treatment of syphilis, constitutional and local; the second treats of the different preparations of mercury and their mode of employment, and the particular indications for their use; the third considers inoculation as a means of diagnosis, and gives a full account of M. Ricord's experiments on this subject. Several new modes of treatment successfully followed in the venereal hospitals of Paris and Berlin are here first introduced to the English surgeon: amongst these may be mentioned Ricord's treatment of chancre by the aromatic wine; Malapert's and Cullerier's plan for dispersing bubo by blisters and the caustic solution of the oxymuriate of mercury, &c.; and Bielt's management of the venereal diseases of the skin at the hospital of St. Louis. The work taken as a whole is a compendious digest of modern practice, more particularly as it is adopted by surgeons at the head of the great venereal hospitals in France and Germany. In foot notes are inserted the formulæ which are employed in the different modes of treatment of which the author speaks. This to the young surgeon and even the established practitioner will be found a great convenience and assistance.

The manual of M. Humbert gives an account of the mode of practice adopted by Biett at the hospital of St. Louis in venereal diseases of the skin. The first part of the work notices generally the remedies employed by M. Biett, whilst the second gives a brief description of the several varieties of the "syphilides" as they are termed by Alibert, and the particular indications for the use of each remedy. In these forms of disease the various mercurial preparations are chiefly relied upon by M. Biett in conjunction with vapour-bathing, and attention to the general health. He speaks highly of the muriate of gold and the arseniate of soda in certain cases where mercury had failed. The preparation of mercury on which most reliance is placed is the bichloride. The manual of M. Humbert is a work of great practical value.

ART. VI.

1. *Statistica delle Morti Improvvise, e particolarmente delle Morti per Appoplessia, nella Città e nel Circondario Esterno di Milano, dall'anno 1750 al 1834.* Del GIUSEPPE FERRARIO, D.M.—Milano, 1834. 8vo, pp. 238.

Statistics of Sudden Deaths, more particularly of Deaths from Apoplexy, in the city and neighbourhood of Milan, from 1750 to 1834. By JOSEPH FERRARIO, M.D.—Milan, 1834.

2. *Monografia sulle Morti Repentine.* Del Signor N. M. SORMANI, D.M.—Milano, 1834.

Monography on Sudden Deaths. By N. M. SORMANI, M.D.—Milan, 1834.

THE two works of the Doctors Ferrario and Sormani, at the head of this article, are two Prize Essays upon the following theme, proposed by the Lombardo-Venetian Royal Institute of Science, Literature, and Arts:—"To investigate the causes of sudden death; determine the morbid alterations by which it is produced; the influence of the various constitutions of the atmosphere, of the seasons, of meat and drink, of the passions, the manner of life, &c.; to enquire, also, whether this kind of death is become more common in the present day than it was formerly."

Both the essays are very creditable productions; and the writers examine the subject from different points of view. Dr. Ferrario has entered into an elaborate investigation of the medical topography of Milan; and we shall lay some of the principal results of his labours before our readers, as it may be interesting to compare the cities of Italy with the cities of this country, where the sky is imagined to be less genial. Milan, in its sanatory state, represents with sufficient accuracy the cities of the north of Italy; except that it appears to have been some fifty years ago rather more salubrious than Lodi, Cremona, Mantua, and Pavia. The annual deaths in 1790 were, in Milan, 1 in 28½, Como, 1 in 29½, Lodi, 1 in 19½, Pavia, 1 in 25½, Cremona, 1 in 19, Mantua, 1 in 22½, Casal Maggiore, 1 in 20½, Varese, 1 in 30½. The mortality in all the cities was 1 in 26; while in the surrounding country, the *campagna* of the several cities, the mortality was rather higher, 1 in 24. This is in contradiction with nearly all other observations; but Ferrario accounts for it by the greater

humidity of the country, and the practice of sending infants, particularly foundlings, out of the cities to be suckled. In the three years 1831-2-3, the population of Lombardy increased from 2,393,424 to 2,416,567, and the annual proportion of deaths in the three years respectively was 1 in 30, 1 in 28, 1 in 28; of births, 1 in 24, 1 in 26, 1 in 25.

Milan, the capital of Lombardy, had, in 1833, a population of 179,625; namely, 155,472 in the city, and 24,153 in the *Corpi Santi*, or suburbs, exclusive of the garrison. The city itself is 12,749 metres in circumference; and the area is computed at 8,683,450 English square yards. It lies in a fertile level plain, between the rivers Adda and Ticino. The inhabitants, according to Ferrario, are goodnatured, frank, and generous; in proof of which he alleges the various institutions for the relief of the poor, who are, not as elsewhere, acquainted with real destitution (*vera miseria*.) The city contains 4920 houses, generally of three stories, besides the ground-floor; several, however, have four, five, and even six stories. There are consequently 32 persons to each house; and 1 person to every 56 square yards of area. The soil is alluvial; and potable water is obtained from wells in every house. The Botanic Garden stands 121 metres above the Adriatic. The latitude of Milan is 45° N.; and the longest summer day is 15 hours 34 minutes; the shortest day of winter is 8 hours 36 minutes. The mean height of the thermometer, deduced from observations made twice a day during 55 years by the eminent astronomer Cæsaris was 60° Fahrenheit: the mean of all the maxima was 88°, of all the minima 19°. During the 71 years, 1763 to 1833, the north wind (*settentrionale*) blew 2321 days, the north-east (*Greco*) 3614 days, the east (*Levante*) 6800 days, the south-east (*Sirocco*) 2357½ days, the south (*Australe*) 1506½ days, the south-west (*Libeccio*) 3339½ days, the west (*Ponente*) 5083 days, the north-west (*Maestro*) 2352 days. The annual fall of rain is 35 inches.

Milan is said to have contained 246,000 souls in 1590; and in the history of Milan, by Verni, the pestilence of 1630 is said to have proved fatal to 140,000 citizens. The population is given in the tables of the census, by Count Carli, as 110,118 in the year 1750; and the deaths then amounted to 2023, exclusive of the deaths in hospital. The *Spedale Maggiore* is an immense establishment: it contained 1067 patients on the 1st of January 1780, and 1334 on the 1st of January 1833. The total number of patients admitted in the 54 years, 1780 to 1833, was 1,063,978; of whom 146,219 or 13·76 per cent. died within the walls. The mortality of cases treated in 1780-800 was 13·97 per cent.; in 1801-33 a little less or 13·60 per cent. In one year 16 out of 100 cases terminated fatally; in several other years not more than 12 out of 100. The total deaths in Milan in the 54 years, 1780-833, amounted to 373,256, and the deaths in the *Spedale Maggiore* were 146,219, or 39 per cent. of the whole number. In the year 1832 the total deaths in Milan and the suburbs were 7405; namely, 2916 in the great hospital, 65 in the lunatic asylum of Senavra, 99 in the hospital of Fatebenefratelli, and 409 in the foundling hospital (*Pia Casa di S. Caterina alla ruota*); for, like other cities on the continent, Milan has its foundling hospital—that bounty upon profligacy, parental depravity, and indirect infanticide. The number of parents who abandon their children progressively in-

creased from 592 in 1750, to 2792 in 1833. In 1821-33 there were 87,484 children born in Milan; and of these 30,418, or 35 per cent. were abandoned. In the 3 years, 1831-3, 18,121 children were born in the city of Milan, and 4314, 23·8 per cent., died in the first year of life.

From an enumeration made under the direction of the celebrated Gioja, in 1805, it appears that there were then in Milan 100 physicians, 123 surgeons, 49 accoucheurs, 125 chemists, druggists, &c. (*chimici e farmacisti, padroni e praticanti.*) The population was 150,442.

In order to deduce the rate of mortality of any place it is necessary to ascertain the number of deaths during a certain number of years, and the mean number living during the same period. The number living is ascertained by regular enumerations; the deaths by the bills of mortality. But in all cities where there are large hospitals the sick are brought from the country; and these ought to be excluded from the calculation. Again, many of the children of foundling hospitals are sent into the country; and these should by right be included in the enumeration of the living, and, when they die, in the bills of mortality. Thus the average number of children in St. Catherine's hospital (1833) was 342, the deaths in the hospital 705; the average number of foundlings in the country was 6484; the deaths among them in the year, 745, or 11·5 per cent. The two elements act in opposite directions, and neutralize each other to a certain extent. In every city there is a *floating population* (*popolazione mobile*) consisting of the entire number of persons living within the limits, and a *fixed population* (*popolazione stabile*), comprising none but permanent residents, or citizens. The fixed population in Milan (1833) was 136,508, namely, 68,203 males, and 68,305 females: the fixed and floating population was 179,625; the difference was 43,117; and in the same year 2437 are stated to have died in the hospitals, not belonging to Milan (*non appartenenti alla città di Milano.*)

The subjoined table exhibits the mortality of the population of Milan during 80 years, in decennial periods. We have deduced these results from the 57 enumerations of the population, and from the annual deaths given by Ferrario.

Mortality of Milan, 1751-1830.

Years.	Censuses.	Mean Population.	Annual Deaths.	Annual Deaths per cent.
1751-60	2	117390	5521·4	4·703
1761-70	9	128074	5018·6	3·918
1771-80	10	134249	5471·5	4·070
1781-90	10	132795	6153·2	4·634
1791-800	8	134074	7174·2	5·339
1801-10	4	146148	7923·0	5·442
1811-20	4	156596	7190·0	4·565
1821-30	10	170695	6852·1	4·021
	57	140003	6324·5	4·517

Some slight deduction should probably be made for the sick sent to the hospital from the surrounding country.

Milan was occupied by the French army and revolutionized in 1796; the new government was broken up by the arrival of the Austrian and Russian armies in April, 1799; and the French regained possession of the city in June, 1800. It is not often that we have so good an opportunity of ascertaining the effect of war upon the mortality.

Annual Mortality per cent.				Births to 100 living.	Mean Price of grain.
Years.	Males.	Females.	Mean.		
War ... 1796-805	4·961 5·859	4·521 5·354	4·742 5·606	4·094 4·474	28·87 lire 44·51

The annual mean price of grain remained nearly stationary at 33 *lire al moggio* from 1793 to 1798; it had been as low as 21·83 *lire* in 1791; but in 1799 it rose to 38·35, in 1800 to 58·43, in 1801 to 67·09 *lire*: in 1833 it was 33·35 *lire*. It will be observed that when the annual mortality increased from 4·742 per cent. to 5·606, or 18 per cent. the births increased 9 per cent., or in half the proportion, so that an effort was made by nature to replace the excessive loss by excessive reproduction.

Dr. Ferrario has endeavoured to determine the influence of the three systems of physic which prevailed in Milan during the 84 years, 1750 to 1833; and it may not be uninteresting to compare the mortality in the three epochs, although it would be unfair to ascribe the differences exclusively to the medical systems.

Years.	Annual Mortality.	Observations.
1750-9	1 in 22·06	Systems of Boerhave, Cullen, Tissot, Borsieri, &c. Epidemics of smallpox at intervals, and often very severe.
1760-9	1 in 24·44	
1770-9	1 in 24·55	
1780-9	1 in 22·31	System of Brown.
1790-9	1 in 19·12	Period of war and revolutions.
1800-9	1 in 17·06	Introduction of vaccination. The system of contrastimulism commences and is in vogue.
1812-19	1 in 17·18	
		Changes of government. Petechial fever.
1820-9	1 in 25·18	Period of tranquillity. The doctrine of contrastimulism is moderated by eminent teachers, particularly by Hildebrandt.
1830-3	1 in 25·29	

It would be absurd to pretend that medical theories have not a decided influence upon the mortality; but it is difficult to say, in the present case, how far contrastimulism is chargeable with the excessive mortality in 1800-19.

We now come to the more direct subject of the essay—the causes and prevalence of sudden deaths. What is sudden death?—"That," says Morgagni, "which, foreseen or not, takes away a man's life suddenly, without any expectation of the event upon his part." It may be asked does "suddenly" mean three minutes, three hours, or three days? and there can be no doubt that in this as in other cases the duration of the

disease should be stated definitely; nevertheless, in the absence of more accurate facts, the general notion of sudden death is not to be discarded as valueless. It appears to comprehend a class of cases generally terminating in less than three days after the attack. Sormani has given a good practical classification of the causes of sudden death, which we subjoin.

“Causes of Sudden Death.”

A. EXTERNAL.

(a) *Known.* 1. From a total and sudden privation of respirable gas—drowning—suffocation, &c.

2. Poisons, particularly hydrocyanic acid.

3. Lightning.

4. Traumatic lesions—wounds of the great vital centres—cerebro-spinal concussion—contusions and extensive lacerations, &c.

5. Excesses of heat, cold, meat, drink.

(b) *Unknown.* 1. Certain deleterious states of the atmosphere entirely unknown.

2. Miasmatic emanations from animal and vegetable matter in putrefaction.

3. Pestilential contagions of several kinds.

4. Poison of the viper, virus of hydrophobia.

B. INTERNAL (or internal morbid states).

(a) *That can be detected in the Body.* Foreseen during life (1) by symptoms of the hemorrhagic, apoplectic, cardiopathic, or pulmonic habit; (2) by symptoms of diseases which often destroy life suddenly: vertigo, cerebral, and pulmonary apoplexy, epilepsy, hydropericardium, asthma, or syncope from organic disease of the heart, angina pectoris, &c.

Unforeseen during life, (1) as they commence insidiously and gradually increase; several of the diseases previously mentioned, sometimes unattended by their peculiar symptoms; (2) as the sudden death is caused more by the intervention of an external cause than by the maturity of the internal pathological conditions: e. g., the tenuity of the parietes of a blood-vessel might have resisted secretly the impulse of the blood, driven there by the heart, had not a heavy fall, or a paroxysm of anger, made the impulse greater for a moment, and ruptured the vessel in the diseased part.

(b) *That cannot be detected in the Body;* (1) because they arise in the intimate tissue of vital organs, or consist of an altered state of the blood, miasmatic fevers, malignant fevers; or (2) because they act upon the innervation with the rapidity and force of lightning, without leaving any traces which our senses or the finest anatomical instruments can discover; nervous apoplexy from an internal cause, violent mental affections, sometimes with the coincidence of physical disorders.”

Dr. Sormani states that out of 22,452 deaths at Milan in the three years 1831-3, there were 875 by apoplexy, 25 by hemorrhage, 1 by pulmonary apoplexy, 11 by syncope and asphyxia, 5 by angina pectoris, 29 by aneurism, 91 by diseases of the heart, 1 by cerebral concussion, 2 by vertigo, 1 by coma, 2 by suffocative catarrh, 5 by difficult labours; in all 1048, which would frequently fall under the designation of sudden death.

In his statistical researches Ferrario has restricted himself to the investigation of apoplexy, or the diseases designated apoplexy in the bills of mortality. Assuming that the term apoplexy has been employed in the same sense, mortality from that disease has doubled in Milan during the

period comprised in the bills of 1750 to 1833; while the mortality from other diseases has not decreased to the same extent.

Proportion of Annual Deaths from Apoplexy.

Years.	Deaths by Apoplexy.		Proportion of the Deaths by Apoplexy to the Population.	
1750-9	-	959	-	1 to 1231
1760-9	-	976	-	„ 1296
1770-9	-	1103	-	„ 1205
1780-9	-	1235	-	„ 1092
1790-9	-	1718	-	„ 766
1800-8	-	1679	-	„ 847
1812-9	-	1665	-	„ 965
1820-9	-	2267	-	„ 743
1830-3	-	1209	-	„ 589
1750-1833	-	12811	-	„ 917

It is found that males are more liable than females to apoplexy. Of 11,731 cases of apoplexy in Milan, 6492 were of males, and 5239 of females; while the proportion of females living is higher than that of males.

A greater number of cases of apoplexy occurred in the cold than in the hot months. The deaths from apoplexy in January were 1176, February 1030, March 956, April 848, May 829, June 681, July 681, August 645, September 718, October 822, November 963, December 1075—total, 10,432.

It is not easy to determine the influence of professions; but the following is an estimate given by Ferrario.

Deaths by Apoplexy out of 100,000 of each Class.

Brokers, Agents, Farmers (<i>Sensali, Agenti, Affettajuoli</i>)	-	-	1,117
Physicians, Surgeons	-	-	480
Painters, Engravers, Sculptors	-	-	329
Merchants	-	-	256
Victuallers and Innkeepers, Winehouse-keepers, Cheesemongers (<i>Osti, bottiglieri, pizzicagnoli</i>)	-	-	255
Engineers and Accountants (<i>Ingegneri e ragionieri</i>)	-	-	168
Masons	-	-	32

The most important result is that deduced from the deaths by apoplexy at different ages. The tendency to apoplexy increases with age in a geometrical progression; doubling every 10 years. The ages of the living were enumerated in 1805; the deaths in decimal periods of life in 57 years (1774 to 1833, excepting 3 years) are given in the following table by Ferrario. The right-hand column shows the mortality from apoplexy, upon the assumption that the ratio was uniform—or 2·15 per cent. every 10 years.

Table of the Living in 1805; the Total Deaths in 1805; the Deaths by Apoplexy, 1774-1833; and the Annual Deaths per cent. by Apoplexy.

Age.	Living, 1805.	Total Dying, 1805.	Died of Apoplexy, 1774-1833.	Annual Mort. per cent. by Apoplexy.	
				(Observed.)	(Calculated.)
0-10	35837	2842	147	·007	·006
10-20	28555	264	221	·015	·013
20-30	25639	363	407	·022	·029
30-40	22010	335	719	·032	·032
40-50	17733	401	1361	·135	·132
50-60	11704	403	2161	·322	·285
60-70	7768	454	2949	·643	·614
70-80	2899	359	2033	1·321	1·321
80-90	474	171	461	1·706	
90-100	23	12	23		
	150442	*5603	10422	·122	

Ferrario has given the total number of deaths at different ages only for the year 1805. And although he has given the mortality at every age by apoplexy in vulgar fractions, he does not appear to have been aware that the rate of mortality increased regularly, or at least so uniformly as to leave little doubt that the fatality of apoplexy is governed by a mathematical law. His monograph, however, contains a valuable collection of facts, and throws considerable light upon the etiology of apoplexy.

ART. VII.

Traité des Maladies de Plomb ou Saturnines. Par L. TANQUEREL DES PLANCHES, Docteur de la Faculté de Médecine de Paris.—Paris, 1839. *Treatise on the Diseases occasioned by Lead.* By L. TANQUEREL DES PLANCHES, M.D.—Paris, 1839. 2 vols. 8vo, pp. 550, 344.

ALTHOUGH the poisonous effects of the preparations of lead have been known for a long period of time it is only recent researches which have given a definite form and character to the knowledge previously obtained, and enabled us to recognize and to trace these effects with certainty as the result of a specific cause. Perhaps the volumes of M. Tanquerel may be taken as exhibiting, in a more decided manner than has hitherto been done, the invariable relation of certain symptoms known under the name of lead colic and paralysis, with the introduction of this metal in some form or other into the system. Many exceptional cases, in which this peculiar form of colic might be supposed to arise from other causes, are noticed, and upon closer investigation traced to an evident and satisfactory connexion with some preparations of lead, and the whole subject is placed in a clearer light,—the work leaving, in fact, upon most of the leading points, little to be desired.

The treatise of M. Tanquerel comprises separate dissertations upon the

* The total deaths in 1805 amounted to 6577; but the number 5603 is exclusive of foreigners, and of deaths of persons in the hospitals not belonging to the city of Milan.

following subjects:—1. Lead Colic, (“Colique de Plomb ou Saturnine,” Colicum Pictonum, Devonshire Colic, &c.) 2. Rheumatism or Neuralgia from Lead, (“Arthralgie Saturnine.”) 3. Paralysis from Lead, (“Paralysie Saturnine.”) 4. Loss of sensation from Lead, (“Anæsthesie Saturnine.”) 5. Delirium, Coma, &c., from Lead, (“Encephalopathie Saturnine.”) These are preceded by a few preliminary remarks upon the effects produced on the system by lead previous to the development of the more decided forms of disease, the induction as it were of a saturnine diathesis, which the author somewhat fancifully terms “*Intoxication saturnine primitive*.”

The principal marks by which this state of the system may be recognized are, according to M. Tanquerel, a peculiar bluish or bluish-gray tinge of the gums, which sometimes extends over the mucous membrane of the mouth generally, the teeth at the same time becoming discoloured and affected with caries; a sweetish, styptic, astringent taste in the mouth, with a peculiar fætor of the breath; sallowness of the skin, and dull yellow tinge of the conjunctiva; general emaciation, and small soft compressible pulse and, in some rare cases, a considerable reduction in the number of its beats. Of these symptoms the discoloration of the gums and teeth is the most frequent and the most characteristic. It appears to be owing to the deposition of a very minute film of sulphuret of lead on the mucous surface and on the enamel of the teeth, the former becoming of a bluish slate-gray colour, as before mentioned; the latter of a brown colour, which is deepest at the neck of the tooth or the part in immediate contact with the gum.

This fact of the coloration of the gums by lead has been also noticed by Dr. Schilbach of Neustadt, and by Dr. Burton, of St. Thomas's hospital.* The latter author is inclined to rely on this symptom as an infallible proof of the presence of lead oxide in the system, and thinks that in all cases of illness originating from this oxide, about the symptoms of which some ambiguity exists, an examination of the gums will materially assist in making a correct diagnosis. The importance of attending to the premonitory symptoms generally is shown by a statement made by M. Tanquerel with respect to lead colic, from which it appears that of 1217 cases of this affection coming under his notice, 1195 were previously affected with one or more of the symptoms here mentioned, a timely attention to which, with temporary cessation from work, has in many instances been successful in averting the threatened attack. (p. 190.)

I. LEAD COLIC. The definition given by M. Tanquerel of this affection is as follows: “A neuralgia of the digestive and urinary organs produced by the introduction and absorption into the system of lead in the molecular state. This neuralgia is characterized by severe and continuous pains of the abdomen, becoming more acute by paroxysms or crises, diminished or but little if at all augmented by pressure, and accompanied by rigidity and retraction of the abdominal parietes, by obstinate constipation, vomiting or nausea, eructations of intestinal gases, loss of appetite, dysuria, slowness and hardness of the pulse, and by agitation and anxiety. Thus,” he adds, “there is in the lead colic exaltation of the

* Froriep's Notizen for October, 1839. London Medical Gazette for January, 1840.

sensibility with perversion of the contractility and of the secretions of the diseased organs." (p. 22.)

It would not be difficult to show that this definition or rather brief summary of the characters of lead colic, is as liable to objection as those of certain preceding authors. To this, however, we should not have thought it necessary to refer had it not been for the very questionable hypothesis of the nature of lead colic put forward in it. Neither the character of the pain, the symptoms existing simultaneously with it, the subsequent degeneration into paralysis,* nor the methods of treatment most commonly found effective in its cure, afford any countenance to the idea that the disease is a neuralgia. In the historical sketch which follows we have a condensed account of the progressive steps made in the recognition of the disease, from the first faint traces to be discovered in the writings of the older physicians down to more modern times, in which an assemblage of symptoms similar to those now known to arise from the introduction of lead into the system was first clearly described. Nicander, whose writings next to those of Hippocrates are perhaps the oldest extant, gives a sufficiently exact though concise description of the symptoms of lead colic, and recognizes the metal both as the cause of these and of the paralysis in which they not unfrequently terminate; but with this single exception, the agency of the metallic poison in the production of the peculiar effects from time to time observed seems to have been lost sight of. Accordingly, even in later times, though the disease itself was recognized, we find it described under various names, some of which point out an endemic origin, (*colica Pictonum*, *colique de Normandie*, *Devonshire colic*, &c.;) others connect it with certain trades (*painter's colic*, *butten katze*, *colique des fondeurs*, &c.;) others refer to causes of a different description or of less definite character, (*colique vegetale*, *colique minerale*.)

The work of M. Merat (*Traité de la Colique Metallique*) is not free from this last objection, and it is due to M. Tanquerel to state that he has done much towards clearing up and simplifying the true causation of this and other diseases arising from lead, by the investigation of cases apparently exceptional, and the excluding of other agents whether mineral or vegetable from any share in the production of like phenomena.

"Lead, then, and its compounds must actually penetrate into our economy in order to give rise to the lead colic, that is, to an affection consisting in a special modification of organs more or less remote from the part to which these poisons can be primarily applied. These substances after having been previously deposited on some part of the human body, are taken up by the capillaries and carried into the circulation, by which means they arrive at the abdominal organs and disturb their functions. . . . It is only as a consequence of their absorption that the particles of lead can give rise to colic, constituting an essential difference between this disease and the inflammatory poisoning produced by the ingestion of a large quantity of the preparations of lead into the stomach. In this latter case the poison is not absorbed, but irritates the membrane with which it is in immediate contact, and may inflame and ultimately destroy it." (pp. 49, 50.)

M. Tanquerel mentions among the preparations of lead which have

* It should be observed, however, that M. Tanquerel would scarcely admit that paralysis is in any case a consequence of the colic.

been known to give rise to the lead colic : 1. Metallic lead. 2. Lead in combination with oxygen ; the sub-oxide, massicot, litharge, and minium or red lead. 3. Combinations of lead with various acids ; borate of lead, sub-carbonate, ceruse or white lead, phosphate, chromate, and nitrate of lead, the acetate or sugar of lead, and the sub-acetate or extract of lead, and Goulard's extract. 4. Sulphuret, chloride, cyanide, and silicate of lead. And 5. The alloys of lead with tin (solder), antimony, copper, silver, and gold. It is, however, questionable whether metallic lead ever really gives rise to colic, or other diseases produced by the action of this poison on the human body, as there is reason to conclude from the rapid action of the oxygen of the atmosphere and other physical agents upon this metal, that previously to its absorption it may become converted into an oxide or a carbonate, sulphuret, or some other compound.

The question of the mode by which the poison is introduced into the animal system is one of the highest importance, since upon its correct determination depends in a great measure the efficacy of the preventive measures employed to counteract the noxious effects of the several processes of manipulation to which the workmen in leadworks of various descriptions are exposed. Without going so far as to say, with M. Tanquerel, that absorption by the skin never takes place, or at least is never the means by which the poison of lead is introduced into the system in sufficient quantity to give rise to colic, it may, we think, be admitted that, compared with other modes of access, the cutaneous absorption of lead is of extremely infrequent occurrence.

In support of his opinion upon this point M. Tanquerel cites with justice the frequent and long-continued application of plasters and lotions containing lead in surgical practice. We cannot, however, concede to him that his three experiments on two dogs and a rabbit at all tend to confirm his views. In one of the dogs a drachm of carbonate of lead in combination with axunge was rubbed into the skin daily for a period of eight days ; in the second dog lead plasters were applied to the abdomen and chest previously deprived of the hair ; and in the rabbit an ointment composed of an ounce of litharge and an equal quantity of axunge was rubbed into the inner part of the thigh, which had also been previously shaven, the frictions in this last experiment being performed three times a-day until the ointment was expended, which occurred in twelve days. Both the skin of the first dog and that of the rabbit were blackened by the solution of sulphuret of potash, but no effect was observed to be produced on the health of the animals subjected to experiment.

"In the face of like facts, some positive, others negative," says the author, "the choice, it appears to me, is easy. What confidence can be placed in the simple assertions put forth by the writers of past ages to prove that lead in contact with the cuticle is capable of giving rise to lead colic, when we bring them together with a great number of negative facts, observed with much care by enlightened men living at a period when everything referring to observation is carried on with an exactness and closeness of attention of which a great number of our predecessors seldom thought." (p. 59.)

Were the negative facts referring to the absorption of lead by the skin of no higher value than M. Tanquerel's positive facts, as detailed in the very superficial and trivial experiments referred to, they would indeed

possess very little weight, and the most determined opponent of the doctrine of cutaneous absorption would hesitate before he drew any inference from three experiments extending over a period of from eight to twelve days, in the face of a long series of cases in which persons have been exposed for months to the reception of this poison in every possible way, and others in which it has been actually administered internally in considerable doses continued daily for a much longer period without the production of colic or any other injurious effect.

Contenting ourselves, however, with enforcing the necessity of attending in all cases to the frequent cleansing of the hands and skin generally by those engaged in the manipulation of lead, we proceed to the consideration of what we believe, with M. Tanquerel, to be by far the most frequent if not the sole method by which the poison of lead becomes introduced into the system—absorption by the mucous membranes in the processes of ingestion and inhalation.

The author adduces many striking facts illustrative of the danger of employing preparations of lead as remedies without due caution; among others, he quotes a singular case from M. Alphonse Devergie in which a single grain of the acetate produced colic, increased by a second dose, and rendered so violent by a repetition of the same quantity a third time as to give rise to a judicial investigation. The preparer of this medicine was accused of negligence in making up the pills, but on chemical examination they were found to contain only one grain each. On the other hand, M. Fouquier gave the same preparation in the dose of eighteen grains daily for several months; and M. Barbier, of Amiens, exhibited as much as 240 grains in thirty-seven days without even the slightest symptom of colic being produced. It is remarkable that in the face of these cases and others to the like effect, M. Tanquerel should for one moment have placed any confidence in the experiments before mentioned. Without, however, throwing doubt upon the occasional administration of lead in large doses and for a considerable length of time without injurious consequences, he expresses himself as being persuaded that preparations of lead taken internally as medicines give rise to colic more frequently than is generally believed. It is sufficiently evident, however, that the personal experience of M. Tanquerel respecting the medicinal qualities of lead is most defective. "I have only seen," he says, "these substances administered four or five times, and twice I have noticed the appearance of colic and other lead affections." (p. 70.) It is absurd to found any conclusions on such a bald experience as this; but we must allow that they are borne out by the testimony of the late Dr. Andrew Duncan, whose opportunities of observation were much more extensive. We have ourselves had frequent occasion to employ the acetate of lead in cases of internal hemorrhage, sometimes in frequently repeated doses and continued for some time, and have never seen any injurious effects arise from its use; but we would nevertheless impress the caution of watching, in all instances where lead is given internally, for the slightest manifestation of its peculiar effects, and the necessity of immediate suspension of the remedy when such occur.

The lead colic and other diseases resulting from the absorption of lead into the system are more frequently induced by the ingestion of various alimentary matters contaminated, either by accident or design, with this

deleterious metal. An excellent account of the accidental contamination of water from leaden cisterns, pipes, &c., as well as of the adulteration of cider, perry, wines, and other fermented liquors, will be found in Dr. Christison's *Treatise on Poisons*, with which work, as well as with the writings of Sir George Baker, Dr. Wall, Dr. Percival, and other English authorities, we are glad to observe M. Tanquerel shows a competent acquaintance. Much important matter from these sources is quoted or referred to, which as being already well known to the English reader, may here be passed over. There can be no question but that in many instances colic is induced among workmen employed in leadworks and trades in which lead is used from the want of due care in the eating of their food, particles of lead being thus frequently conveyed into the stomach with the aliment; but the inhalation and consequent absorption by the pulmonary mucous membrane of the fine particles diffused through the atmosphere in the state of impalpable powder, in many of the operations carried on in the several departments of the works, would seem to be the most frequent cause of lead colic. The liability to colic as a consequence of the inhalation of lead is not, however, confined to those actually engaged in the manipulation of this metal; and the author relates instances of this affection induced by sleeping in apartments recently painted. Among these is the case of Dr. Corsin, of La Villette, near Paris, who after having occupied for two nights a chamber newly painted with white lead, was attacked with all the symptoms of lead colic. After some days of suffering in the abdomen, the head became affected, epileptic fits, alternating with delirium and coma, supervened, and rapidly proceeded to a fatal termination. (p. 86.)

The following is a list of the occupations of 1213 persons affected with lead colic, and is stated to be drawn up from actual observation of the cases during a period of eight or nine years ("from 1831 to 1839,") all, with the exception of nine, having been received at the hospital of La Charité. To this list we have added, for the convenience of comparison, those of the persons suffering from other forms of lead disease, subsequently given by the author in different portions of his work.

	Colic.	Other Diseases.				Total.
Manufacturers of white lead	406	220	31	9	25	691
Ditto red lead	63	104	6	3	5	181
Ditto massicot	12	7	..	..	..	19
House painters	305	168	22	6	20	521
Coach painters	47	33	4	..	..	84
Ornamental painters	33	25	5	..	..	63
Porcelain painters	3	..	..	..	..	3
Gilders	1	..	..	..	..	1
Painters or varnishers on metal	2	..	..	..	..	2
Coloured paper makers	2	..	..	..	..	2
Colour grinders	68	43	6	..	3	120
German and glazed cardmakers	19	7	1	1	3	31
Sword-belt makers	2	..	..	..	..	2
Perfumers	2	..	..	..	..	2
Earthenware potters	54	33	5	..	2	94
Dutch-ware potters	7	..	..	..	..	7
Refiners	25	14	3	..	2	44
Plumbers	14	10	3	1	3	31
Tiamen (etameurs)	8	3	..	..	..	11

	Colic.	Other Diseases.					Total.
Puttymakers	4	..	..	..	..	..	4
Block-tin workers (ferblantiers)	4	..	1	..	..	..	5
Jewellers, goldsmiths, trinket-makers	4	..	..	..	..	..	4
Copper-founders	2	1	..	..	..	..	3
Bronze-founders	1	..	..	..	..	..	1
Type-founders	52	38	4	..	2	..	96
Printers	12	8	3	..	1	..	24
Small-shot manufacturers	11	6	..	1	2	..	20
Lapidaries	35	27	3	2	3	..	70
Cutters and polishers of crystals	3	..	1	..	..	..	4
Plate-glass workers	2	..	..	..	..	..	2
Manufacturers of acetate, nitrate, and chromate of lead	10	5	4	..	..	..	19
	1213	752	101	23	72	..	2161

In addition to the occupations enumerated in the preceding table, M. Tanquerel mentions, as liable to suffer from the action of lead, workmen employed in lead mines; manufacturers of litharge, of glass, and of porcelain; glaziers, &c.; but of cases of colic or other disease arising from lead, amongst workmen of these descriptions, he has had no personal experience. It will be observed that this list differs considerably from those obtained from the records of the hospital of La Charité by M. Merat, in being much more extensive and complete, and embracing a far greater number of instances of the occurrence of lead-disease. Yet the author states that all the workmen whom he has seen attacked with lead colic had been in some way or other in contact with lead, though, according to M. Merat, persons employed in various copper-works, and even in other trades and occupations in which no lead is used, are also liable to be attacked. Among these are mentioned seven button-makers, five brass-founders, four braziers, and one copper-turner, in all seventeen belonging to trades exposed to the influence of copper; and four varnishers, two gilders, two locksmiths, and twelve others of various occupations, all of whom, however, though not actually engaged in leadworks, might possibly in other ways have been exposed to the influence of lead. Another and more important source of error in the statistical statements referring to this subject is pointed out by M. Tanquerel, who shows that without other sources of information little dependence can be placed upon the registers of La Charité. "Thus, for example," he observes, "all the workmen employed in the manufactories of white lead and minium only work there accidentally, being unable from a temporary scarcity of work to carry on their habitual occupation. It results, therefore, that when individuals of this description, the most numerous class of the sick, present themselves at La Charité attacked with lead colic, they are almost always entered in the registers of the establishment under their original trade of mason, terrace-maker, plasterer, shoemaker, founder, distiller, marine, soldier, &c." (p. 94.)

It is scarcely necessary to follow the author through all the details of the several professions and occupations which he enumerates, and upon each of which he affords much valuable information. The general result is that all those parts of the various leadworks and manufactories in which lead is employed, where the particles of metal are diffused through the atmosphere in the state of impalpable powder, are particularly noxious

and that on the contrary, where the lead is worked in its solid and massive state, or prevented from escaping in the form of dust or powder by the use of water in such parts of the several processes as admit of it, injurious effects are far less frequently experienced. This fact is especially shown in the white-lead manufactories. In those of Clichy and Courbevoie, in the vicinity of Paris, from which the greater number of cases are sent to the hospital of La Charité, two methods of manufacturing the ceruse are followed, in each of which, during certain parts of the operation, a constant dissemination of the carbonate of lead in finely-divided particles through the atmosphere of the apartments takes place. The average period which the workmen continue at their work before experiencing an attack of colic is, at Clichy, fifty-one days, at Courbevoie, fifty-seven. M. Tanquerel assigns as the chief reason of this difference between the two manufactories, the greater extent of the former; more workmen being employed and a much larger quantity of white lead being made at Clichy than at Courbevoie, and the atmosphere being in consequence more loaded with the metallic particles. He is also inclined to attribute it in part to the carrying on at Clichy of the several processes of the manufacture in one large apartment, in consequence of which all the workmen become exposed to the same highly-charged atmosphere; whereas at Courbevoie a system of seclusion to a certain extent is adopted, and those only are exposed to the inhalation of the white-lead dust who are employed in the various operations of crushing, picking, grinding, sifting, packing, &c. It must, however, be remarked, that there is also a trifling difference in the processes themselves, by which at the manufactory of Courbevoie one of the most noxious of the earlier operations is dispensed with. In several of our own manufactories various improvements have recently taken place, by which much of the danger is obviated; the practice of dry grinding, one of the most injurious from the vast quantity of dust generated and diffused by it, is now abolished, and the process performed under water. In a large manufactory at Portobello, the rolling or crushing of the plates of lead incrustated with the carbonate formed upon them in the first process of the operation, by which the white lead is separated, is performed under water or with damping, and the only operations now considered dangerous at the Portobello works are the emptying of the drying stove, and the packing of the white lead in the barrels, and even in these the dust is kept down as much as possible by the floor being maintained constantly damp. "By these precautions," says Dr. Christison, "and by care being taken to make the workmen wash their hands and faces before leaving the works for their meals, and to administer a brisk dose of castor oil on the first appearance of any complaint of the stomach or bowels, the manufacturer succeeded in extirpating the colica pictonum entirely for several years. A few years ago it appeared again to a limited extent among the work-people, apparently in consequence of the rules as to cleanliness not having been so carefully enforced." (Christison on Poisons. 2d ed., p. 506.)

The beneficial effects of an appropriate system of seclusion are also observed in the manufacture of red lead; accordingly at Clichy, where leadworks of this description are extensively carried on, and where the several parts of the process are followed in two apartments only, the workmen being kept constantly exposed to an atmosphere charged with the emanations or the dust arising from the packing, powdering, calcining,

drying, and reverberating operations, the proportional number of sick is much more considerable than at the manufactories of MM. Tournaise and Guizet, in which each operation is carried on in a separate apartment and a smaller quantity of the red lead is produced. (p. 119.) The more dangerous parts of the operation are those enumerated above, and in the order mentioned; but here, as in the white-leadworks, improvements have been effected in this country by altering the construction of the furnaces,—an additional chimney being placed in front of the drawing aperture, through which a strong current of air carries off the finer particles raked out from the furnace, which under the older plan were diffused through the apartment. (Christison, op. et loc. cit.) The average term at which the workmen become affected with lead disease in the Parisian red-leadworks is forty-five days; so that according to this method of calculation, the manufacture of red lead would seem to be even more deleterious than that of ceruse.

The most numerous class affected with lead colic next to the white-lead manufacturers is that of the house-painters; it must not, however, be inferred on this account that any relation in point of actual danger exists between these occupations. The number of persons employed in the preparation of white lead is not more than 106, while no less than 406 cases of colic in individuals of this class are entered in the table. As this table extends over eight or nine years, the annual average of cases is between forty-five and fifty, or about one half of those engaged in the manufacture. The number of house-painters in Paris, according to an estimate of M. Tanquerel, obtained from his enquiries among the masters, foremen, workmen, police-registers, &c., amounts to 5000 or 6000, who in the favorable seasons, that is, in spring, summer, and autumn, are in constant employ. The annual average of cases of this trade entered in the table is between thirty-five and forty, or about one in 150 of those employed. M. Tanquerel states that of those who exercise this profession during thirty or forty years, nearly a fourth become attacked at least once in the period. Some can scarcely continue even a few days at the work before being affected with colic; others do not experience an attack under twenty or thirty years, while the greater number are fortunate enough to escape altogether. (p. 124.) The more injurious parts of the trade are stated to be those in which particles of lead are diffused through the atmosphere, as the painting with spirits of turpentine, or dead white, as it is technically termed in this country, the preparing of the colours, and the dry scraping and rasping of walls, previously painted, with pumice-stone, &c. Carriage-painters, of which there are about 1000 employed in Paris, are relatively less subject to colic than house-painters, which is attributed to their never carrying on their trade in confined apartments, to the quantity of colour used being less, to the materials employed being prepared with varnish, &c.

One of the most pernicious, perhaps it might be said the most pernicious, among the occupations in the foregoing table, is the making of German and glazed cards. Of twenty-four persons employed in the manufacture of the "*cartes d'Allemagne*," not more than a fifth escape being attacked with colic. The materials employed to colour the paper are preparations of lead, ceruse being used for the white, and red lead or litharge being added when red tints are required. A kind of paste is prepared by mixing together white lead, water, and some sort of gluc

(colle), with the occasional addition of litharge, red lead, or other colouring matters. To apply this coating to the pasteboard it is boiled, and the workmen are constantly surrounded with an atmosphere of vapour in which particles of white lead are suspended; in addition to this, every second or third day they scrape and clean their work-benches covered with the dried ceruse, thus diffusing this material through the apartment in the state of impalpable powder or dust. It is to be hoped that the use of the glazed cards, the preparation of which is so highly injurious to those engaged in it, will in future be dispensed with, the more especially also since accidents have arisen from young children having sucked the poison, where they have been incautiously permitted to obtain possession of them.

M. Tanquerel states that if plumbers, or those employed in the melting and working of lead in its metallic state, are careful not to touch their food with unwashed hands, they are never attacked with colic; but he gives a remarkable instance of several boys employed at the royal manufactory in the Rue des Prouvaires in unrolling a considerable number of rolls of lead in a small room, becoming suddenly affected. It seems that they were engaged the whole day in this operation in the midst of a cloud of dust filling the air of the room in which they worked. On the morrow with one exception only, they were all attacked with lead colic. (p. 150.) Type-founders would seem to suffer much, since of 100 workmen engaged in type-founding, one fourth had been attacked with colic once or oftener; this is, however, attributed to want of care in the management of their food, which many of them are accustomed to prepare and to eat in their workshops. Some compositors also who have contracted the injurious practice of putting the types in the mouth while correcting their pages, become liable to the disease. Copper-founders, however, notwithstanding what has been advanced by Merat and others, are stated by M. Tanquerel not to be liable to colic; and he asserts that the instances of colic supposed by these authors to arise from the action of copper had not been studied with sufficient care. Had the different processes in the copper-works where the workmen became attacked with colic been closely investigated, it would have been found, he thinks, as he has himself observed in like cases, that the only operations in which the workers in copper contract the colic are those which require the employment of a small quantity of lead. (p. 154.)

It is unnecessary to pursue these remarks further; we turn, therefore, to the consideration of the subject of predisposition, with the view of attempting some estimate of the extraneous causes which may have a tendency to favour or impede the development of the symptoms of lead-poisoning in the system. The cases of lead colic and arthralgia occurring at different seasons were as follows:

	Colic.	Arthralgia.		Colic.	Arthralgia.
January	. 67	32	July	. 190	93
February	. 77	45	August	. 127	89
March	. 95	62	September	. 92	63
April	. 99	69	October	. 84	54
May	. 115	74	November	. 78	45
June	. 137	91	December	. 59	38
				<hr/>	<hr/>
				1217	755

A trifling difference will be observed here from the general numbers given in the table of occupations, but not sufficient to affect in any way the result of a progressive increase of the respective diseases from January to July, and a progressive diminution of the same from July to the close of the year. A similar result, although the cases are not given in monthly returns, was noticed in the paralytic affections; thus of the 102 instances reported, twenty-eight occurred in spring, thirty-six in summer, twenty-six in autumn, and only twelve in winter. This increased frequency of diseases from lead-poisoning during the summer months is attributed by M. Tanquerel partly to the greater activity of the works at that time,—the white-lead manufactories, for example, being sometimes stopped for months at a time in the winter, and more than one half of the house-painters being out of employ during the same season. Notwithstanding the operation of these circumstances, however, the author states it as the result of his enquiries that, *ceteris paribus*, the number of workmen sick is always greater during the hot than during the cold seasons of the year, and concludes, therefore, that heat acts as a predisposing cause in the generating of lead disease, either by favouring the dissemination of the lead itself, or more especially by rendering the system more permeable to the introduction of the poison.

The following table shows the ages of those affected :

	Years.	Colic.	Arthr.	Paral.	Anaesth.	Enceph.
From	5 to 10	8	2	..	..	..
10	„ 20	80	52	2*	1	4*
20	„ 30	244	167	24	3	20
30	„ 40	445	290	36	10	30
40	„ 50	277	163	28	6	12
50	„ 60	118	63	8	2†	5
60	„ 70	39	18	4	..	1
70	„ 80	6	..	..	..	..
		<hr/> 1217	<hr/> 755	<hr/> 202	<hr/> 22	<hr/> 72

But little information as to the effect of age in predisposing to the reception of the poison of lead or to the development of lead disease can, however, be drawn from a statement of this imperfect character, other details being required for comparison before any judgment could be attained: such are the ages of the workmen generally, the relative period of exposure, the intensity of that exposure, and many other conditions respecting which we have no information. It may be observed, however, that five or six children, employed in a manufactory of fancy papers and cards belonging to M. Hangrand, are stated to be frequently attacked with colic, while the adults in the same manufactory are more rarely so; on the other hand, old persons have been met with by the author who have not been attacked with colic after attaining an advanced age, though still under the same circumstances of exposure as when formerly the subjects of disease. (p. 180.)

We find little more to remark upon this subject, except that here, as in other diseases of totally different character, habits of intemperance, and

* Under 20.

† Between 50 and 70.

even occasional excesses powerfully predispose to the reception of the morbid influence and the development of its effects.

"Generally, sober persons are spared by the disease, or if attacked it is much later, and the attacks are renewed only after pretty long intervals. In a good many cases we have remarked that the disease showed itself on the morrow and even on the second day after a debauch. Monday is the day on which the working people of Paris most frequently commit excesses in drinking, and accordingly we have many times seen that a greater number of sick are received into the wards of La Charité on the Tuesday and Wednesday." (p. 155.)

The lead colic is usually marked by severe twisting or gripping pains; retraction and hardness of the abdominal parietes; a more or less constipated state of the bowels; nausea and vomiting, with eructations of wind and occasionally hiccough; loss of appetite, thirst, and diminution or suppression of the secretion of urine. Some of these symptoms, however, are of far more frequent occurrence than others, and may therefore be considered as more decidedly characteristic of the action of lead. M. Tanquerel thinks that the pain is not only the most important symptom, without which, indeed, the disease cannot exist, but that it is also the first in point of appearance. Usually, he observes, it is situated at the umbilicus, less frequently at the epigastrium or hypogastrium, and more rarely still is it found to occupy the region of the kidneys, the hypochonders and lateral parts of the abdomen, or the chest. The median line of the abdomen was observed to be the usual seat of the pain, and even in the comparatively rare instances, when the whole abdomen became affected, the parts most pained were the umbilicus, epigastrium, and hypogastrium. (p. 195.) In no case was the colic-pain observed to follow the precise course of the colon. The intensity and duration of the pain are of every degree, from the most trivial and transient up to paroxysms of long continuance and of such extreme severity as to deprive the wretched sufferer of all consciousness of what is passing around him. Pressure commonly relieves it, and it is a frequent practice among those attacked to have recourse to heavy weights placed upon the abdomen, with the view of obtaining some respite from the severity of their sufferings. This is not, however, universally the case, since of the patients observed by the author 300 experienced no alleviation of the pain by pressure, while in 175 the pain was slightly, and in thirty-nine considerably, increased under compression. Thus in almost two thirds of the whole number of cases, the pain was diminished by pressure; in about a fourth it was neither diminished nor augmented; and in the sixth part nearly there was an increase. (p. 202.) Constipation is of almost constant occurrence the bowels having been confined in 1140 out of the 1217 instances. In thirty-three of the remainder the bowels were regular, in twenty-five there was diarrhœa during the first two days of the attack, and in nineteen throughout the whole course of the disease. (p. 203.) The evacuations were generally deficient for several days, and in one case the constipation had lasted for a fortnight. That the relaxed state of the bowels in those who were affected with diarrhœa did not depend upon any complication was shown, as the author thinks, by the effect of the usual purgative treatment, under which it completely and quickly disappeared. Six cases of colic are subsequently referred to, as having occurred during the prevalence of a slight epidemic diarrhœa, in which the epidemic con-

stitution was observed to exert its influence in so far modifying the usual symptoms of the disease, but in these also the purgative treatment proved equally efficacious in the removal of the diarrhoea as in those before alluded to.

It was thought by Merat that the retraction and hardness of the abdomen were in proportion to the severity of the pain; this, however, is questioned by M. Tanquerel, who expressly states, as the result of the observations collected by himself, "that a constant relation of proportional intensity between these two data cannot be established." (p. 205.) In a succeeding paragraph, however, we find him, in accordance with the views advanced by M. Merat, saying: "In general the more acute the colic pain, the more marked are the hardness and contraction of the belly. Some exceptions to this rule, of which it is difficult to detect the cause, exist." (p. 208.) We conclude that neither M. Merat nor M. Tanquerel, in laying down a general proposition, even in sciences more exact than that of medicine, would ever think of asserting that exceptional cases or residual phenomena may not be found which prevent us in the present state of our knowledge from making the rule absolute. The rule of M. Merat may, therefore, be substantially true, although, from the interference of causes not accurately defined, exceptional cases, the rationale of which we are unable to appreciate or explain, may occur. To determine how far the muscular coat of the bowels participates in the rigidity which affects the abdominal muscles, the author examined the rectum of a great number of persons suffering under attacks of lead colic, and concludes as the result of his trials that the anus and rectum are always more or less affected with a spasmodic constriction analogous to cramp.

"If at the immediate commencement of a paroxysm in violent lead colic, the forefinger is attempted to be introduced into the rectum, a considerable difficulty is at first experienced to its entering the bowel, arising from the sphincter, which is so strongly contracted as to occasion a sense of tightening and numbness to the finger, as if it were held in a vice. By pushing somewhat strongly the resistance from the anus is at length overcome, and the finger enters the lower part of the rectum, the walls of which are found approximated. For some lines and even an inch beyond, the opposite walls of the bowel are still observed to be almost in contact, and if it is wished to penetrate further, they must be separated mechanically by the finger. If the finger is retained in this manner during several paroxysms of the colic, the same sensation of tightening and numbing is very sensibly felt at the instant of access throughout the whole extent of the rectum in contact with the finger, as at the circumference of the anus, but in a less degree. During the remission, this sensation of constriction always continues, though much less marked, to return again with increased strength at the paroxysm." (p. 210.)

M. Tanquerel has observed the occurrence of nausea and vomiting in a very large proportion of the cases, the former being much more frequent than the latter, and generally preceding its occurrence. Only twenty-two cases where the epigastrium was affected without being attended with vomiting were noticed, and in these the pain was slight. The matters vomited were of a leek-green colour, of viscid consistence, of very fetid peculiar smell, and of an extremely bitter metallic taste, which was by some compared to that of lead, by others to *verdegria*, according to the notion entertained as to the cause producing this attack. (p. 213.)

It should be stated that M. Merat was inclined to attribute the frequency of vomiting to the peculiar treatment adopted, with which opinion, however, M. Tanquerel does not coincide. Eructations were very common; the passage of flatus by the anus rare. Hiccough was observed in 115 of the cases, which were for the most part of great severity. The tongue was usually moist, red at the edges and tip, slightly coated, white and sometimes yellow at the middle and at the base; pretty frequently it was observed to be somewhat swollen, ("*plus grosse que dans l'état normal*," p. 215.) Some of the patients complained of dryness of the mouth; others on the contrary said that the saliva was increased in quantity; but not one instance of salivation or ptyalism was observed by the author without complication with stomatitis, angina, &c. There was generally considerable thirst, the indulgence of which not unfrequently afforded some relief to the pain; in other cases, however, the swallowing of any liquid produced a sense of suffocation. The appetite was very rarely preserved. Very frequently a considerable degree of irritation of the urinary organs accompanied the paroxysms of colic; the desire to pass water was urgent; but although repeated efforts were made by the patient for this purpose, there was no excretion of urine during the paroxysm, or it passed only drop by drop. During the remission of the pain the urine flowed more freely, and sometimes after the trial had been repeatedly made for a length of time ineffectually, it would all at once pass in considerable quantity. (p. 219.) The cause of this symptom is not very apparent; possibly various causes may in different cases concur in giving rise to it. Stoll and Dance attribute it to spasm of the urethra, but M. Tanquerel observes that he has never seen distension of the bladder produced by the accumulation of a large quantity of urine in these cases as happens in paralysis of that organ. He conjectures that the suppressed evacuation of urine may depend upon defective secretion, which will especially be the case when the colic is seated in the region of the kidneys. It is not improbable that both these causes are in operation, together with spasm of the ureters and of the bladder itself, by which, at the same time that the propulsion of the urine into the bladder is impeded, the desire to pass what may find its way during the remission of the spasm into that organ becomes urgent. Accordingly, as we have recently had occasion to observe, a sense of distension, fulness, and weight arises in the region of the kidneys and along the whole course of the ureters, which is in some cases particularly distressing, but yields readily as soon as a copious flow of urine has taken place.

Jaundice has been noticed by the author in fifty-one cases supervening in the midst of "horrible suffering without the slightest alleviation of the symptoms. Thirty-five times it coincided with pains seated in the right hypochondr and fifteen times with pains in the epigaster." Care must be taken not to confound attacks of jaundice of this nature with the habitual discoloration of the skin, &c., or jaundiced state induced by the long-continued and gradual action of lead on the system.

Notwithstanding the severity of the pain, the circulation is rarely accelerated, and in many instances preserves its natural characters. Of the 1217 cases reported by the author, the pulse was in 678 between thirty and sixty, in 376 from sixty-five to seventy, and in 125 from eighty to 100; in the remaining thirty-eight cases there was a complication of the

disease with inflammatory symptoms, which accounted for an accelerated rate of the pulse observed in these instances. (p. 228.)

A marked character of lead colic is the striking alteration of the expression of the countenance, which indicates extreme anxiety and the most intense suffering. "It is almost impossible," says M. Tanquerel, "to mistake this expression when it has been once observed, although difficult to convey an idea of it in words. The eyes are deeply sunk in the orbits, or sometimes thrust prominently forwards from their cavities; they are surrounded with a bluish circle, muddy, wild, and with the other parts of the face in constant motion, vividly expressive of the different degrees of pain experienced by the patient. The nose is somewhat pinched; the cheeks become hollow; and in short the muscles and features of the face generally are in a state of tension and retraction analogous to what occurs in those of the abdomen." (pp. 232-3.) The voice sometimes becomes husky and whispering, the respiration more or less oppressed, the general strength annihilated, while the intellectual faculties and *morale* are entirely thrown off their balance.

M. Tanquerel attempts to establish certain varieties of lead colic depending upon the seat of the pain, its intensity, &c. He thus distinguishes the umbilical, epigastric, hypogastric, and renal forms; the mild, moderate, and violent; the acute and the chronic. These distinctions are, however, trivial, and for the most part of little practical importance, with the exception, perhaps, of the last. He also points out certain complications with other diseases which are of frequent occurrence, more especially those with the affections arising from lead described in the sequel, and with diseases of the intestinal canal and of the urinary organs in general. It appears that in 525 of the colic cases arthralgia existed at the same time; in forty-four cases there was paralysis, and in thirty-five encephalopathia simultaneously present. It is worthy of remark that the number of cases of lead colic admitted at La Charité during the year in which the cholera appeared at Paris was excessively small, and that the manufactories of white lead and minium of Paris and its vicinity had fewer workmen attacked with the lead colic than in preceding years: six of the patients were attacked with cholera. (p. 248.)

The progress and duration of lead colic present considerable variety; three stages are distinguished, those of invasion, increase, and decline. Without entering at any length into the separate consideration of these several stages it may be briefly observed that the invasion is frequently sudden, though generally preceded by the premonitory symptoms before noticed, and sometimes by slight or wandering pains in some part of the abdomen, and according to some authorities by constipation. The stage of increase, or rather of persistence, is characterized by constipation, paroxysms of pain, with remissions, &c. of varying severity, but with little or no change in the actual state of the disease until its transition into the third stage or that of decline, which is almost always rapid, the disease ceasing almost entirely in the course of a single day or even a few hours.

"The constipation gives way, or commonly has given way, the evacuations taking their usual course; the abdomen regains its softness and becomes convex; the sphincters relax; the nausea and vomiting subside; the flatus begins to take its usual course downwards; the appetite becomes good; the fetid taste

and breath disappear; the urine flows easily and in abundance; the pulse recovers its frequency, its regularity, and its accustomed softness; a restorative sleep dissipates the fatigue, the sense of soreness or general uneasiness resulting from the violent shock recently inflicted on the whole system. Finally, this same day, or at least the following, the remains of the colic completely disappear and the patient is cured." (p. 251.)

Sometimes, however, in the midst or even at the close of the stage of decline, the symptoms reappear in all their severity; a relapse, which is commonly attributable to error in diet, to a renewed exposure to the emanations arising from lead, or some other imprudence on the part of the patient. When persons who have contracted the disease are enabled, in consequence of its mildness to continue at their work, and of course are still exposed to the source from which it originally sprung, the duration of the symptoms, unless controlled by appropriate treatment, seems indefinite. M. Tanquerel has witnessed instances of this description where the disease has lasted for whole years. Where the work is laid aside and the affection left to the efforts of nature, it may continue indefinitely for twelve or fifteen days, for months, for years; in a few instances it disappears spontaneously, in from two to eight days, being generally of longer duration when severe than when moderate or slight. When subjected to active treatment by the employment of drastic purgatives repeated daily, the average duration, according to the author, is not more than three or four days, computing from the actual commencement of these remedial measures. (pp. 254-5.)

The diagnosis of lead colic from other affections, more especially from diseases resulting from other metallic poisons, from the so-called vegetable colic, from gastro-enteralgia, inflammation of the abdominal viscera, organic lesions of the abdomen, ileus, from colic arising from the presence of worms, concretions, collections of hardened fæces, &c., is carefully drawn. Of these the inflammatory forms of disease will be distinguished by the presence of fever, the quickened circulation, the intolerance of pressure, &c.; the organic lesions, concretions, &c., by close examination of the abdomen, and by the seat of the pain. This last is often either confined to one particular spot, the immediate site of the lesion, or of the obstruction whatever may be its nature, or follows the course of some part of the intestinal canal, whereas the pain in lead colic is usually seated in the median line. It is, however, only by a careful consideration of all the symptoms and a close comparison of them with those of lead colic in all its forms, that some of the more obscure cases can be accurately made out. The colic from copper and its compounds, according to M. Tanquerel, differs from that of lead, in never extending beyond the bounds of the abdomen, at the same time that it is generally diffused over the whole of this part, in the pain being always increased by pressure, in the abdomen being somewhat softer and less retracted, in the absence of nausea and vomiting, which are very rarely observed in colic from copper, &c. The pain arising from copper also never gives rise to that peculiar state of agitation and constant change of position and expression which is so characteristic of lead-colic. Instead of the bowels being constipated, as is usually the case in the latter disease, there is a relaxed state of them with abundant glairy, greenish, frequent evacuations, sometimes accompanied by tenesmus; the secretion

and excretion of urine are little affected, and the fetid breath, sweet taste, and slate-coloured tint of the gums, together with the sallowness of complexion and emaciation are absent. The colics of Poitou and Devonshire have been sufficiently elucidated, and ascertained to arise from the use of lead; the colic of Madrid, the symptoms of which present great analogy with those of lead colic, is attributed by Luzuriaga and Hernandez to this poison; the French physicians residing in Spain are, however, mostly of opinion that it is owing to improper and acescent vegetable diet and exposure to evening exhalations. M. Tanquerel is disposed to agree with his countrymen, and endeavours, unsatisfactorily as it appears to us, to make out a distinction between the two affections. The subject requires further investigation by unbiassed and competent observers, who should have opportunities not only of noting the symptoms accurately and fully, but of investigating the previous circumstances of the persons suffering under attacks of the disease. From the statements of M. Alfaro it would seem that several different affections, such as enteritis, colitis, dysentery, nephritis, hepatitis, and other diseases of the abdominal viscera, are confounded under the term colic, by the people of Madrid, and that the descriptions of Luzuriaga and Hernandez refer not to all affections commonly classed as colic of Madrid, but to the lead colic, as it is frequently observed in this capital amongst house-painters and other workmen engaged in occupations connected with the use of lead. The colic of Normandy also requires further investigation, as the statements of M. Vasse, a physician at Rouen, scarcely warrant the inferences drawn from them by M. Tanquerel. Previously to quitting the subject of diagnosis, we may observe, that there is an excellent tabular view of the distinguishing characteristics of lead colic and gastro-enteralgia arranged in parallel columns, which is, however, too long for quotation.

The termination of lead colic, according to M. Tanquerel, is, notwithstanding the exaggerated statement of Tronchin, rarely fatal. It must not, however, be inferred from this that the prognosis is favorable in an inverse ratio; for though the attack may not end directly in the death of the patient, as a consequence of the severity of the abdominal symptoms, a fatal result may, and often does ensue from the simultaneous progress or the subsequent development of paralytic or cerebral disease. Of the author's cases ten proved fatal, of which number six were affected with cerebral symptoms, simultaneously with those of colic, two died from paralysis of the intercostal muscles, one from pneumonia, and in one only was death produced by the abdominal affection alone. In this case the patient had been labouring for three months under colic-pains of extreme severity, and notwithstanding the employment of every mode of treatment, at length sunk under the continued suffering, the victim "of a species of painful consumption," (p. 299.) Twenty fatal cases were observed by Dubois and Burette, at La Charité, in a period of thirteen years, and sixty-four fatal cases by Gardanne, during twelve years, but the cause of death is expressly stated by Dubois and Gardanne to have been convulsions, epilepsy, lethargy, apoplexy, &c. In three fatal cases, mentioned by De Haen, and in two mentioned by Combalusier, there were epileptic convulsions and delirium. Doosan lost one after several attacks of epilepsy. M. Merat reports

five deaths, not one of which arose from the abdominal affection; and in five cases, observed by M. Andral, there was either delirium, convulsions, coma, or asphyxia. The total number of cases of colic, observed by M. Tanquerel and the authors above mentioned, is 4809, of which 111, or about one in forty-three terminated fatally; but, with one exception only, the fatal result is said to have been owing either to the cerebral affection, to paralysis of the respiratory muscles, or to some accidental complication with diseases, with the production of which the poison had no concern, (pp. 300-1.) It is from the presence of these complications, then, or from the tendency to the cerebral or paralytic forms of lead-disease, that an unfavorable prognosis is to be drawn; and it should be borne in mind that in instances which are purely and simply cases of colic, the whole system is under the influence of the deleterious agent, and consequently that the head or the respiratory muscles may become affected either in the progress or even in the decline of the abdominal symptoms.

Little or no light has been thrown upon the pathology of lead colic by microscopic investigations. The author has collected together forty-nine cases of lead colic, uncomplicated with other diseases, ("colique saturnine non compliquée,"—not complicated, we presume, with diseases not arising from the action of lead,) in which the appearances have been noted down with sufficient precision. In twenty of these no alteration was found in the intestinal canal, or only such traces of congestion as are met with in the greater number of subjects submitted to examination after death, and in which, during life, no functional lesion of the digestive organs had been ascertained. In five cases partial softening, without other alteration, was met with in the most dependent parts of the intestines, a purely cadaveric change, which has been observed in a multitude of instances. Six times there was partial or general thickening of the digestive tube, a lesion which, according to M. Tanquerel, is also met with indiscriminately in pathological examinations, ("dans toute espèce d'autopsie.") Hypertrophy of the glands of Brunner was observed in seven cases, and in three of these there was also enlargement of those of Peyer. In sixteen instances a drawing together or thinness, (un tassement ou un rétrait) of the intestinal convolution was observed, that is, a contracted or constricted state of its coats, as Merat, Leroux, and De Haen describe it, but which M. Tanquerel, influenced by his views as to the nature of the disease shortly to be adverted to, is very unwilling to call it. He considers, that to attribute this state of the intestine to contraction of its parietes is altogether hypothetical, because "slight traction or insufflation readily makes the diminution of caliber in the intestine to disappear. (p. 318.) We are not disposed to contest the point with M. Tanquerel that this contracted state of the intestine is actually the cause of lead colic, but we may observe that admitting, as he does, that it forms one of the anatomical characters of the disease, and that it is found in a third part of the post-mortem examinations, considering also that the leading symptoms of lead colic admit of occasional remissions, and that the fatal result is almost invariably attributable to affections of other organs of the body, that consequently the anatomical characters cannot always be expected to remain at the moment of death if of a nature which is not necessarily permanent, it is at least as consistent with the facts observed, as the

gratuitous assumption of the disease being a neuralgia of the grand sympathetic, to which not one pathological fact lends the least countenance. It is true, that upon one single occasion, an increased development of the ganglia of the great sympathetic nerve was ascertained by the author to exist, but he himself admits that this change should be considered as an effect of the symptoms observed during life, and not as their anatomical cause. The kidneys and bladder were, with the exception of some vascular congestion, commonly found nearly of their natural appearance, though in one of M. Tanquerel's own cases, in which there was considerable constriction, or "*lâssemant*," as he terms it, of the folds of intestine, the bladder also seemed contracted, (*retirée sur elle-même*), and was of very small size.

It has been attempted to detect the presence of lead in the excretions, fluids, and tissues of those affected with lead colic; but, with the exception of a recent analysis by M. Alphonse Devergie, without success. The subject of experiment was a colour-grinder, who had followed that occupation for eighteen months; he was affected with colic, arthralgia, and delirium, having had three previous attacks of colic during the eighteen months. The parts submitted to analysis were the stomach, intestines, and fecal matters, the gall-bladder containing some bile; the kidneys, the bladder, the lungs, weighing twenty-two ounces three drachms; a portion of the brain and of the muscular substance, seven ounces of the blood, and about two grains of the black matter collected from around the neck of the teeth. All these organs afforded traces both of lead and copper, the latter being in very small proportion, but the lead being seven or eight times more abundant than M. Devergie had discovered in persons dying from diseases unconnected with lead poisoning. The process followed was that of incineration. After having dried the animal matter it is reduced to charcoal, calcined in a porcelain crucible, and washed repeatedly. The incinerated matter is then treated by hydrochloric acid; a part of the acid is evaporated, water is added, and this aqueous fluid treated by sulphureted hydrogen; a chocolate brown or black precipitate is formed, according as the copper or the lead predominates. This is collected in a porcelain vessel and treated by nitric acid; the mixture is diluted with water, filtered and evaporated over a gentle fire; the product contains the two metals in the state of a salt. The lead may be procured in the metallic state, by subjecting the sulphuret to the action of the blow-pipe. (tom. i. p. 325.; t. ii. pp. 401-6.) It is scarcely necessary to remind our readers that Dr. Mibner and Professor Christison have succeeded in detecting lead in some of the tissues of animals poisoned by that metal; the former in the liver, the muscles, and especially in the spinal cord; the latter in the lumbar and dorsal muscles. Their experiments, however, do not exactly fulfil the conditions requisite to make them comparable with colic and other affections arising from the absorption of lead into the human body, and are open, as Dr. Christison himself suggests, to the source of fallacy arising from the now ascertained presence of traces both of copper and lead in the animal solids and fluids generally.

The section devoted to the investigation of the seat and nature of the disease need not occupy us long, the views advocated by the author being entirely hypothetical, and attempted to be supported by distorted

or erroneous statements. He sets out by endeavouring to show that the colic is seated in those organs to which the great sympathetic nerve is distributed, and then draws a parallel between the symptoms of this affection and those of neuralgia of various parts, from which he infers that lead colic is a neuralgia of the great sympathetic nerve. "In the diseases termed neuralgia," he observes, "pain is the characteristic symptom; it is acute, subject to exacerbations, and even to intermissions; far from being augmented, it is alleviated by pressure, and follows ordinarily the course of some of the great nervous trunks." (p. 329.) Those who have been accustomed to see much of neuralgia facialis, and other forms of this distressing class of affections, will scarcely be prepared to believe either that the pain is alleviated by pressure, or confined to the great nervous trunks. Often, indeed, when the patient is quiescent, a paroxysm will be induced by the slightest touch, and the course of the smaller nerves is frequently marked out and described with the greatest accuracy from the shooting of the pain along them, by persons suffering under neuralgia, who are entirely unacquainted with their distribution. It is also asked, whether the muscles of the pained parts in neuralgia of the face and of the lower extremities do not contract, do not apparently occupy a smaller space, especially during the exacerbations of pain? (p. 332.) Certainly nothing but the most determined adherence to preconceived opinion could so far have obscured the reasoning and comparing faculties of M. Tanquerel, as to lead him to the supposition that any analogy exists between the strongly-marked spasmodic contractions of the abdominal muscles in colic, and the state of the muscular system in parts affected by neuralgia. But it is foreign to our object here to examine into the merits of these or other hypothetical views of the nature of the disease advanced by De Haen, Astruc, Laennec, Barbier of Amiens, Dubois, Merat, and many other authorities; perhaps the opinion advocated by Ilsmann, Hoffman, and others, that lead colic consists in a spasmodic contraction of the bowels, notwithstanding the assertion of M. Tanquerel that the constriction of the intestine is a consequence and not the cause of the pain, is as near the truth as any which have hitherto been advanced.

The treatment recommended by the author is that followed at La Charité with its modifications, but especially the administration of croton oil, repeated so as to produce its full cathartic effect; he gives, however, some curious details of the administration of other remedies, which are worthy of some consideration. Of thirty-one cases, in which nothing but the ordinary tisane of the French hospitals was given for twelve days, three were cured by the fourth day, two between the fifth and eighth days, ten between the eighth and twelfth days, and one on the thirteenth day; the remaining cases were subjected after the twelfth day to the purgative treatment, under which they were quickly cured. M. Gendrin having stated that he had succeeded in curing more than 300 cases with the sulphuric acid administered in the form of lemonade, ("*la limonade sulfurique*,") a statement, the accuracy of which M. Tanquerel impugns in no very measured terms, fifty-three cases of colic were, at the instance of M. Tanquerel, submitted by MM. Andral, Dalmas, and Sandras, at the hospital La Charité, to this treatment. After a miserable statement of the prolonged sufferings of some of these

unfortunate individuals, sixteen of whom laboured under colic in its most severe form, two becoming affected with convulsions, and nine, after from twelve to fifteen days of treatment getting worse, we find the physicians to whose care they were intrusted, to ease their consciences, ("*pour l'acquit de leur conscience*,") at length laying aside the *imonade sulfurique*, and having recourse to purgatives, under which the cure was effected in from one to five days from their commencement. M. Tanquerel coolly remarks, "We have not been able to experiment with this medicine in a greater number of instances from fear of the development of cerebral or spinal symptoms, and also because it is painful to see the unfortunate persons suffering for a long time when they might be cured in a few days under other treatment." (p. 355.) Happily such practices as these are unknown in the public establishments of our own country; but we should fail in our duty were we not to express our utmost disgust at this wretched trifling with the lives and sufferings of our fellow-creatures, under the pretence of alleviating the maladies to which they are often, from dire necessity, exposed. Similar atrocities were perpetrated in trials with *nux vomica*, but we abstain from presenting the revolting statement to our readers.

The peculiar treatment of this disease, for which the La Charité has been so famous, has been established upwards of 200 years, and is still followed with certain modifications, by the present physicians, and with distinguished success. It consists mainly of purgatives, with occasional emetics, anodynes, and sudorifics. The following is the method, as prescribed at present.

1st day.* *Aqua cassiæ cum granis* (1); simple sudorific tisan (2):

* The following are the exact formulæ as given by M. Tanquerel :

	K.	Gr.	Decig.
1. <i>Eau de casse avec les grains.</i>			
R. Décoct. de tamarin (64 gr.)	1		
Emétique (Ant. Tart.)			15 (3 gr.)
2. <i>Tisane sudorifique simple.</i>			
R. Décoction de gayac ordinaire	1		
3. <i>Lavement purgatif des peintres.</i>			
R. Infusion de séné		500	
Sulfate de soude		16	
Electuaire diaphœnix		32	
Jalap pulvérisé		1	3 (24 gr.)
4. <i>Lavement anodin.</i>			
R. Huile de noix		125 (ʒiv.)	
Vin rouge		314 (ʒx.)	
5. <i>Bol thériacal.</i>			
R. Thériaque			4 (3j)
Extrait d'opium			0.05 (1 gr.)
6. <i>Eau bénite.</i>			
R. Eau commune		500	
Emétique (Ant. Tart.)			25 (5 gr.)
7. <i>Tisane sudorifique laxative.</i>			
R. Infusion de séné et décoction de gayac	1		
8. <i>Potion purgative.</i>			
R. Infusion de séné		125	
Electuaire diaphœnix			
Strop de nerprun		32	
Jalap en poudre		1	3 (24 gr.)

purgative injection (3) in the morning; anodyne injection (4) in the evening; and three hours after a bolus of theriac and opium (5).

2d day. Aqua benedicta (6); simple sudorific tisan; purgative injection; anodyne injection; theriac and opium.

3d day. Sudorific laxative tisan (7), two glasses; simple sudorific tisan; purgative injection; anodyne injection; theriac and opium.

4th day. Purgative draught (8) in the morning; simple sudorific tisan; theriac and opium.

5th day. Sudorific laxative tisan, two glasses; simple sudorific tisan; purgative injection; anodyne injection; theriac and opium.

6th day. Purgative draught in the morning; simple sudorific tisan; theriac and opium.

7th day. Sudorific laxative tisan; simple sudorific tisan; purgative injection; anodyne injection; theriac and opium.

Sometimes the emetic is repeated several times, and the dose of the antimony is doubled or even tripled.

During the first two or three days a very low diet (*diète sévère*) is enjoined; broths (*bouillons*) are allowed on the fourth or fifth day; and afterwards the diet is gradually improved. (pp. 384-6.)

This practice, although strongly savouring of the continent, does not essentially differ from that mostly followed in this country, namely, a combination or alternation of cathartics with opium, hyoscyamus, and other anodynes. For our own part, we have ever experienced in the cases which we have had occasion to see, the most satisfactory effects from this mode of treatment, aided by warm baths, warm anodyne fomentations, the occasional application of leeches, and the employment of all those means which are fitted to soothe and give comfort to the mind as well as to the disordered state of the nervous and muscular systems of the sufferer.

II. LEAD RHEUMATISM OR NEURALGIA. The term *arthralgia*, employed by the author to designate this affection, which he defines as signifying "neuralgic pains in the limbs from lead" is an objectionable one, as, from its previous use in medical language, it conveys the meaning of the affection being one of the joints; the sense, however, in which it is employed in the work under notice, is to designate "acute pains in the limbs, unattended by redness or swelling, not following the exact course of the nerves, continuous, but becoming more acute in paroxysms, diminished by pressure, augmented by motion, and accompanied with disturbance of the motive functions, such as cramps, hardness, and tension of the pained parts." (p. 493.) It is in short nothing more than the spasms or cramp-pains of the lead colic affecting the muscles of the limbs instead of those of the abdomen, and is most commonly a mere extension of that disease, although occasionally observed separate. It has not been generally recognized as a distinct disease by authors, although we occasionally find it described or alluded to, and not unfrequently, as a rheumatic affection. According to M. Tanquerel, *arthralgia* is with the exception of colic the most frequent result of lead poisoning; he states that he has had occasion to see 755 cases, (752 in the table of occupations, see p. 331), of which number 201 were uncomplicated; in the remaining 544 it was associated either with colic, with paralysis, or with cerebral disease. As a general observation it may be stated that the liability of workers in lead to contract this affection is in direct pro-

portion to their liability to suffer from colic; there is, however, one remarkable exception, the reason of which is not very obvious, in the case of the manufacturers of red lead. By reference to the table of occupations which we have before given, it will be noticed that the red-lead-works afforded sixty-three cases of colic, or about one twentieth of the whole number; whereas the number of cases of arthralgia from the same manufactories was 104, or nearly one seventh. It should be observed also, that sixty-eight of the 201 uncomplicated cases of arthralgia, that is, one third of the number, occurred in red-lead manufacturers.

The pain, which is the most important symptom, occupies most frequently the lower extremities, then the upper extremities, the loins, the parietes of the chest, the back, and the head. Of the 755 cases, in 485 the pain was confined to the lower extremities, in eighty-eight to the upper extremities, in eighteen to the loins, in five to the chest, in four to the back and neck, and in three to the head. In 108 it was simultaneously experienced both in the upper and lower extremities, in thirty-five in the trunk also, and in nine the head as well as the limbs and body generally was affected. (p. 503.) The flexor muscles are, according to M. Tanquerel, more frequently the seat of pain than the extensors, the affected muscles in either case being strongly and spasmodically contracted, and their powers of motion greatly impeded; an exacerbation of the pain often occurs during the night, but there is neither preternatural redness, heat, or swelling of the parts, and the circulation is stated to be for the most part undisturbed. Yet we are also told that in fifty-five of the cases of simple arthralgia, that is, upwards of one fourth of the number of cases of this description, the pulse was found to be hard, slow, vibrating, and in seventeen of them irregular. (p. 510.)

The arthralgia from lead is distinguished from acute rheumatism by the absence of any swelling or redness of the joints, by the pain being relieved rather than increased on pressure, by its sudden and complete intermissions, and by the want of fever and of complication with pericarditis and endocarditis; we cannot, however, coincide in the opinion of the author, that the diagnosis is further established by rheumatism usually attacking one member only or the arm and leg of opposite sides, the arthralgia almost always affecting two parallel members. Neither are we disposed to think that chronic rheumatism is so essentially erratic, changing from one limb to another, as to enable us to distinguish between this affection and the arthralgia from lead, whose locomotive inclinations are exerted, we are told, only within the ring fence of the limb in which it has taken up its abode. The effects of pressure and the stiffness of the joints in the former of these diseases are much better points whereupon to found a diagnosis. From simple neuralgia the course of the pain, which in arthralgia rarely follows that of the nerves, is sufficient to distinguish it, even in the opinion of M. Tanquerel, who nevertheless elsewhere asserts that these pains as well as those of the abdominal affection are neuralgic in their nature; and from syphilitic pains in the bones it is sufficiently distinguished by these last following the course of the bones, and being usually attended by thickening of the periosteum or the characteristic nodes.

No appreciable change was observed, either in the spinal marrow or

in the local seat of pain, in any of the fatal cases in which arthralgia had been present. In the instance before alluded to, as having been the subject of experiment by M. Devergie, the muscles of the calf of the leg were analyzed, and the presence of lead in these parts was detected. With respect to the nature and seat of this affection, M. Tanquerel thinks that the disease is a neuralgia of the filaments of the nerves of sensation, differing only from lead colic in the part which it occupies. The same treatment has been recommended in arthralgia as in the colic from lead, but, according to this author, is not followed by equal success. He advises the employment of sulphureous baths daily for seven or eight days, from five to six ounces of the sulphuret of potash being used in the preparation of each bath. Of eighty-six individuals thus treated eighty were cured in from four to five days, whereas of eighty persons treated by purgatives and opiates, fifty-eight only were cured in from six to eight days, the remaining twenty-two, having experienced no relief, got rapidly well under the use of the sulphureous baths. (p. 523.)

III. LEAD PARALYSIS. Under this term M. Tanquerel describes the loss or diminution of voluntary motion with its accompanying symptoms, &c. arising in persons subjected to the action of lead, reserving for separate consideration the loss or diminution of sensation from the same cause under the term *anæsthesia*. Paralysis has been recognized as an effect of lead upon the human system from the earliest times, although, as in the case of lead colic, it is only recently that definite knowledge has been attained respecting its true characters, causation, and general history. It is, however, to the author of the work before us that we owe the most precise details upon the subject. He considers this affection under the several heads of the history, causes, premonitory symptoms, symptoms, and varieties, diagnosis, progress, terminations, and prognosis, anatomical characters, seat and nature, and lastly treatment.

The absorption of lead or its compounds into the system is stated to be the sole efficient cause of this description of paralysis, and it is very properly observed that what is termed mercurial paralysis is altogether a different affection from paralysis, although by some authors classed with it. M. Tanquerel remarks that of upwards of fifty cases of mercurial tremors observed at the hospital of La Charité, in no one instance was paralysis seen to supervene, and his researches among the workmen generally employed in the manipulation of this metal, as well as of copper, tin, arsenic, and other metallic substances, lead to the conclusion that lead is the only mineral capable of producing paralysis properly so called. The same conditions which influence the production of lead colic exert also a similar influence in the production of lead paralysis; and although there are cases on record which would seem to favour the idea of a paralytic effect being induced by the action of lead on the skin, yet it must be admitted that the more usual mode in which it exerts its deleterious agency is by its gradual introduction through the digestive and respiratory passages. Generally it requires a considerable time before the symptoms of paralysis show themselves, those only becoming affected who have been long engaged in leadworks, and who have already suffered from repeated attacks of colic; exceptional cases, however, are found, as the following table of the periods at which the 102 cases of

paralysis seen by the author occurred, sufficiently shows, (vol ii., p. 19):

Duration of work.	No. of Sick.
8 days	3
From 15 days to 2 months	11
„ 1 year to 5 years	36
„ 5 years „ 10 „	20
„ 10 „ „ 15 „	12
„ 15 „ „ 20 „	12
„ 20 „ „ 25 „	7
52 „	1

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Huxham, De Haen, Stoll, Andral, and others mention the occurrence of paralysis from lead without any previous attack of colic; M. Trousseau is stated to have observed two cases of paralysis of the wrists at the hospital of Tours in persons who had never been affected with colic, and we have ourselves had occasion to observe two similar instances, in one of which, we may remark, the action of the lead would seem to have been purely local. Of M. Tanquerel's cases, also, fourteen had not suffered from colic before the coming on of paralysis; twenty-five had experienced one attack of colic; fifteen had suffered from two attacks; nine had had colic three times previously to the occurrence of paralysis; eight four times; and seven five times; eighteen had experienced as many as from six to ten attacks; four from twelve to twenty; and one person became the subject of paralysis after having suffered no less than thirty times from colic. (vol. ii., p. 21.)

The commencement of an attack of paralysis is generally marked by the occurrence of lassitude, sense of weight or of cold, numbness accompanied by weakness, a kind of weariness or soreness (brisure), unwonted stupidity, and some impediment to motion in the parts threatened with the disease, these symptoms often disappearing when the man gets heated at his work. (vol. ii., p. 26.) The author has never seen pain of the head or in the course of the vertebral column precede the paralysis, though he has sometimes observed more or less tremor, attended with some degree of stupor and heaviness before the attack. When this actually occurs, the loss of motion in the affected muscle or muscles is the first morbid phenomenon which appears, and usually from this period no effort of the will can excite even the most feeble contraction. In some rare cases the paralyzed muscle may yet be able to execute some obscure and uncertain motions, but M. Tanquerel contends that, notwithstanding that many authors both ancient and modern have advanced statements precisely the contrary to this, the instances in which even an imperfect power of motion and contraction seems to remain are more apparent than real, the movements which take place being performed by the assistance of other muscles not paralyzed. (vol. ii., p. 28.) This is a point which can only be determined by a close and accurate analysis of the motions in each individual case. Paralysis of some part of the superior extremities, especially of the wrists and fingers, was observed in ninety-seven cases, of the lower extremities in fifteen, of the intercostal muscles in two, and of the thoracic muscles generally in one case. The vocal

organs were affected in thirty-one instances, of which fifteen were stammering or hesitation, and sixteen aphonia. With the exception of some cases in which the paralysis was general the extensor muscles only were affected, the reason of which, as M. Tanquerel remarks, does not appear. In five cases anæsthesia was observed at the same time in the parts deprived of motion, and in eight cases arthralgia. Although the loss of power is almost universally complete in the affected muscle, it does not arrive at that state until after a few days, but commences with simple numbness and slight tremor. The tremor assumes in no case the extent of alternate, almost spasmodic, contraction and resolution observed in mercurial tremors, but consists rather in a slight agitation of the muscles, and must be considered as the first degree of paralysis. (vol. ii., p. 32.) When the paralysis has been of long duration there is a flaccidity, a withering and extraordinary emaciation of the parts affected; the skin becomes blanched and sallow, sometimes livid, harsh, dry, loose, and flaccid; the cuticle scales off; the subcutaneous cellular tissue disappears, and the adipose tissue is entirely absorbed; the flesh feels flabby; the muscles become much decreased in size, and when the partial emaciation or atrophy has arrived at its ultimate stage the skin seems adherent to the bones, every prominence of which may be readily distinguished through the wasted muscles. The pulse, contrary to the opinion of M. Merat and others, who describe it as constantly vibrating, slow, and very strong, is correctly stated by the author to be weak, soft, easily compressible, and very slow. Neither in the head nor in the spinal column is there pain or other symptom to indicate any anatomical lesion of the nervous centres as the cause of the paralysis.

M. Tanquerel describes several varieties of lead paralysis, according as it affects different parts of the body, or different muscles or sets of muscles; most of these present nothing peculiar beyond what the local anatomical relations of the parts at once indicate. When the intercostal muscles, however, become the seat of the paralysis, a very rare occurrence, and seen only twice by the author who, moreover, has not been able to find any similar instances recorded, the symptoms are in the highest degree alarming. All at once, without previous physical lesion of the internal organs of the chest, the costal respiration is executed with the greatest difficulty, the ribs appearing almost entirely motionless. When the patient is required to make a great effort at inspiration the clavicles are evidently elevated, the rest of the thoracic parietes follow the movement, but the ribs are neither raised by themselves nor separated wider apart. The walls of the chest are considerably depressed; the action of the diaphragm, on the contrary, is greatly augmented, and in its alternate contractions it elevates the abdomen in an extraordinary manner. The respiration becomes noisy and the expectoration difficult; serous effusion accumulates in the bronchi, the lungs become congested, and death supervenes by asphyxia, in a manner analogous to what takes place in animals in which the pneumo-gastric nerves have been divided. During the whole of this scene the pulse is irregular, extremely rapid and small, the skin cool, the countenance anxious, the eyes staring, and the nostrils distended. The mind continues clear, the speech is short and hurried, and the voice whispering. (vol. ii., pp. 61-2.)

The progress of lead paralysis is in general slow and gradual; its dura-

tion, except in the case of its affecting the intercostal muscles when it is necessarily rapidly fatal, indefinitely prolonged. Usually the diagnosis is not difficult, being readily deducible from the history of the case, the exposure of the patient to the influence of lead, its complications with colic, from the local seat of the disease in certain muscles only, and more especially from its being confined to the extensors. There are cases, however, where it affects the whole of a limb and where its origin is obscure, in which it differs in no respect from ordinary paralysis produced by other causes; two or three such instances are mentioned by the author.

The prognosis is more or less unfavorable in relation to the extent and duration of the paralysis, to the importance of the parts affected, to the debility of the patient, and to the number of attacks previously experienced; where the paralysis is confined to some few of the muscles of a limb and appropriate remedies are timely applied, it is favorable; on the contrary, should the intercostal muscles be affected a fatal termination is the inevitable result. Little satisfactory information has been elicited as to the state of the nervous centres in lead paralysis, the principal morbid change observed in the inspections which have been performed being serous effusion beneath the membrane, considered by M. Tanquerel, and probably with justice, to have been poured out at the time of death. The local alterations noticed are similar to what is observed in the ordinary forms of paralysis, and result from the defective vitality in the parts affected. Thus the muscles are wasted and pallid or otherwise discoloured, scarcely preserving their original form, and resembling rather cellular tissue than muscular fibre; they become either so softened as to tear with the greatest facility, or else dry, mummified as it were, and almost of the nature of ligament. The caliber of the blood-vessels is diminished and they contain less blood than usual, while the nerves according to some authorities become atrophied. The following is the result of some microscopic examinations mentioned by the author. "1st. The spinal marrow, although more softened than the brain, exhibited the tubes discovered by Ehrenberg in a state of perfect integrity. 2d. The nerves distributed to the paralyzed muscles showed under the microscope their ordinary structure. 3d. The paralyzed muscles deprived of colour, exhibited under the microscope their proper fascicular structure with transverse striæ as usual, only colourless." (vol. ii., p. 80.)

Various methods of treatment have been proposed; but of these three only require notice, the treatment by sulphureted baths, by electricity, and by strychnine. In the first of these from five to six ounces of sulphuret of potash are required for each bath, which should be used only tepid, the patient remaining in it from three quarters of an hour to an hour. During this time he experiences nothing beyond a sensation of general warmth; on coming out of the bath, however, the limbs seem lighter, more supple, and easier to move; sometimes he is attacked with numbness, faintness, and severe headach; a general redness of the surface is observed and especially of the affected parts, which are often covered with a more or less abundant black matter, arising from the decomposition of the sulphuret of potash of the bath by the lead ingrained into the skin. In from a quarter to half an hour the benumbed limbs become

heavy and unwieldy, but at the termination of three or four hours it is perceived that the movements become more regular, acquiring both force and steadiness. The author has seen only five cases of paralysis cured by this mode of treatment, used by itself, but he considers it a valuable adjunct to the other methods by electricity and the preparations of nuxvomica, and recommends its employment as soon as these agents begin to produce their peculiar effects. (vol. ii., pp. 88-9.) The treatment of paralysis by electricity employed in various ways is well known in this country, and need not occupy us here. Fifteen of M. Tanquerel's cases affected with partial paralysis of the upper extremities were treated by electro-puncture; eight of these were completely cured in periods of time varying from one month to three months and eight days, in the other seven the treatment could not be persisted in from the supervening of inflammatory symptoms, or from the patient refusing to submit to it as long as was necessary to complete the cure. Strychnine was administered to forty patients, the whole of whom were either completely cured or their symptoms greatly alleviated, two months being the mean duration of the treatment. With the use of these remedial measures should be conjoined an appropriate regimen; dry warm apartments exposed to the sun, woollen clothing, nourishing food easy of digestion, with the moderate use of wine, beer, coffee, &c. exercise of the paralyzed parts, external frictions, &c.

IV. ANÆSTHESIA FROM LEAD. Twenty-three cases of anæsthesia were noticed by M. Tanquerel, in four of which the disease was deep-seated, in seven the loss of sensation was confined to the skin, and in twelve the eye was affected. In the eleven cases of deep-seated and superficial anæsthesia, three times there was paralysis of the corresponding muscles, four times the paralysis of motion and of sensation occupied different parts, and four times the loss of sensation was unaccompanied by loss of motion; in one case only did amaurosis and anæsthesia of the skin exist together. (vol. ii., pp. 201-2.) Of the cases of deep-seated anæsthesia there was loss of sensibility of the deltoid region in one; in another there was paralysis of the thigh with anæsthesia of the leg; in a third the power of motion was lost over the whole extent of the upper extremity, —the anæsthesia commenced at the fingers and extended to two thirds of the arm; in the fourth there was paralysis of the intercostal muscles and of the vocal organs, and at the same time loss of sensation of the neck and of the parietes of the thorax as far as the ensiform cartilage. In one of the cases of superficial anæsthesia there was paralysis of motion of the extensors of the wrist and fingers, the sensation of the back of the hand and fingers being preserved, while the palmar surface of the hand had entirely lost its sensibility, the flexor muscles of the wrist and fingers at the same time retaining their powers of motion. In another instance there was superficial anæsthesia with exalted sensibility of the parts beneath and paralysis of the corresponding muscles.

The lesion of sensation is always partial or of limited extent, sometimes confined to certain parts of the abdomen, of the chest or neck, sometimes occupying the limbs; it may be complete or varying in degree, frequently shifting its place, or varying in extent; when deep-seated it is less mobile than when confined to the skin. Usually it makes its attack suddenly and rapidly attains to its fullest extent, though occasionally it

is preceded by a slight numbness. The treatment recommended is the sulphureted bath, and should this fail, frictions, epispastics, and irritants of various kinds, sudorifics, blisters, the cautery, or moxas applied either to the surface or along the vertebral column. Should these measures not succeed, which however is very rarely the case, recourse must be had to electro-puncture and strychnine, the exhibition of cathartics internally accompanying these measures throughout.

Amaurosis has been observed to occur as a consequence of lead poisoning by MM. Andral, Rognetta, Grisolle, Trousseau, and others; M. Tanquerel has had occasion to observe it twelve times. In nineteen cases which he has collected, five times the amaurosis was primary, that is, not preceded by any other form of lead poisoning, and fourteen times consecutive either to colic, arthralgia, or cerebral affection. Usually its attack is sudden and without premonitory symptoms; but in four instances it was preceded by frontal headach, and in another there was a gradual increase in the weakness of sight previous to complete amaurosis taking place. The amaurosis may be complete or imperfect only: in the former case there is considerable dilatation of the pupil and entire insensibility of the iris to the light, the membranes and humours retaining their transparency; in the latter case, which however is of less frequent occurrence, the power of distinguishing light from darkness is retained, and the patient believes that he sees objects through a dense mist. The pupil is moderately dilated and is yet somewhat sensible to light, the iris in fact is still somewhat contractile. The amaurosis is not always equal in degree in both eyes, and in this case it is not uncommon that slight strabismus is observed. The progress is in general rapid, the duration of the affection lasting from a few hours to a few days; once only is it said to have continued for years; the mean duration seems to be from four to six days. No anatomical lesion has been discovered in individuals dying while affected with amaurosis from lead, neither in the retina, in the optic nerve, nor in the brain. The treatment recommended consists in the repeated application of blisters to the neck, temples, behind the ears, and over the eyebrows; tartar-emetic ointment, setons, the cautery, and moxas, and in the event of these measures failing and the disease becoming of longer duration, the endermic application of strychnine to the temples, forehead, and superciliary region. Immediate and permanent cessation from employment in leadworks of any description is of course indispensable where so important an organ is concerned.

V. CEREBRAL AFFECTIONS FROM LEAD. The term *Encéphalopathie* is made use of by M. Tanquerel to designate those symptoms arising from the noxious influence of lead upon the animal economy, which would seem to depend more immediately upon some lesion of the brain. It includes, therefore, the various forms of cerebral affection, delirium, convulsions, epilepsy, coma, &c. which are observed in persons suffering from lead poisoning. Many of these affections have been long recognized as the result of the absorption of lead, though some authors, as M. Merat, have considered them in the light of complications rather than as actual symptoms of certain peculiar forms of lead disease. M. Tanquerel has met with seventy-two cases of these cerebral affections which he attributes entirely to the action of lead as the efficient cause.

He seems to think, however, that it requires the absorption of a larger proportion of lead particles to induce cerebral affection than is requisite for the production of colic, arthralgia, or paralysis; since he has only observed symptoms of this description in workmen exposed to the emanations from lead in large quantities. Those preparations of lead which are the most readily diffused, for instance, ceruse and red lead, are stated to give rise to cerebral affections the most frequently. It is necessary also that a certain time should elapse from the first exposure before the disease manifests itself. Of the seventy-two cases, ten occurred in persons who had been at work from eight to thirty days, thirty-four in workmen employed from one to nine months; the subjects of the remaining twenty-eight cases had been exposed to the emanations for various periods from one year to ten, twenty, and in one case fifty-two years, before becoming affected with cerebral symptoms. Six of the seventy-two persons attacked with encephalopathia had not previously suffered from any other form of lead disease; and ten others presented no trace of colic, arthralgia, or paralysis, at the time when they became affected with cerebral symptoms. Laennec, Dance, Andral, and others have also recorded instances of primary encephalopathia. In fifty-six cases which were accompanied with colic, the colic was slight or moderate in twenty-nine, and severe in twenty-seven. From these and other facts the author draws this inference, "that encephalopathia is one of the distinct forms of lead poisoning, and independent of colic and other diseases resulting from lead." (vol. ii., p. 273.)

It appears that in about a third of the cases certain premonitory symptoms may be observed to precede the more decided manifestation of cerebral affection, the most common of which is a peculiar, astonished, dull, or pensive expression. Pain of head varying in severity and extent, often accompanied with giddiness, watchfulness, or disturbed and broken sleep, noise in the ears, various affections of the vision, indefinable uneasiness, embarrassment and slowness of the mental faculties, stupor, &c. may one or all of them precede for some hours the attack of delirium, convulsion, or coma. Forty-two of M. Tanquerel's cases were preceded by colic, but this can scarcely be reckoned as a precursory symptom; it should however be observed that when colic which had previously been severe suddenly subsides, and any of the premonitory symptoms above mentioned appear, an attack of encephalopathia is to be dreaded.

M. Tanquerel establishes four distinct forms of the cerebral affection: 1st, that of delirium; 2d, the comatose; 3d, the convulsive; and 4th, where the delirium, coma, and convulsions are united. In the first of these, delirium forms the prominent and leading feature of the disease, and either assumes very much of the characters of the peculiar restless, talkative hallucination of delirium tremens, or the more violent symptoms attendant upon acute meningitis. The former of these states, constitutes the author's first variety, Quiet Delirium (*Délire tranquille*). Sometimes the patient remains quiet, with the features immoveable and the eyes fixed, with somewhat of an astonished air; sometimes the countenance is composed and the expression thoughtful; at other times again the eyes are turned upwards, the mouth is open, and the whole expression that of ecstasy. If spoken to, the answers are at first sensible, but after a time the ideas rapidly succeed each other, without

apparent connexion. The patients are generally gay or sorrowful, loquacious or silent by turns; they toss their arms, throw off the clothes, endeavour to get out of bed, and are in a constant state of restlessness; hallucinations of sight and hearing, generally of a disagreeable character, harass them, and some few are affected with slight tremor, chiefly occupying the arms and face. (vol. ii. pp. 285-7.) In the latter, or second variety of M. Tanquerel, Furious Delirium (*Dé lire furieux*), the eyes are widely open, menacing, furious, or haggard; the features are contracted, the patient cries or shouts, swears, threatens, tears his garments to pieces, bursts through the restraints by which he was confined, rushes through the wards, and in short is in a state of complete and raging insanity. The delirium, in many of these cases, is accompanied by spasmodic contractions of the muscles of the face, distortion of the eyes, closing and chattering (*craquement*) of the jaws, catchings of the tendons, or tremors of the limbs. Notwithstanding all this disturbance of the nervous system, it is yet possible occasionally to obtain rational replies to questions which do not require much exertion to comprehend their import. Once only did M. Tanquerel witness the patient carry his hand frequently to the forehead and complain of pain, when interrogated upon this point. (pp. 288-90.) The progress of the delirium, whether tranquil or furious, is of inconceivable irregularity, varying from instant to instant without order; sometimes, however, coming on in paroxysms. In both varieties there is frequent alternation, with a kind of muttering somnolence, usually of no long duration, though in some rare cases the interval between the paroxysms of loquacious, or of furious delirium lasts for several hours, which is always a favorable sign. When the delirium is about to terminate favorably, a long deep sleep, which must not be confounded with the state of somnolency, supervenes, at the close of which a complete and often unlooked for amelioration is observed.

The following is what M. Tanquerel considers to be the most regular and complete progress of the delirious form of encephalopathia :

“The cerebral disease commences by the tranquil delirium, at the end of a certain time paroxysms of fury take place; at a later period somnolency occurs, after which it is only the tranquil delirium which comes on at intervals, more or less approximate. At length genuine sleep succeeds the somnolency, at the close of which the patient becomes almost perfectly rational. From this time he is strongly disposed to sleep, which he is unable to resist. Exhausted and with his limbs as if bruised, he still preserves a somewhat astonished expression of countenance.” (vol. ii. p. 294.)

Of the seventy-two cases of encephalopathia, eighteen belonged to this form of the affection.

The second, or comatose form, characterized by coma, more or less profound, occurred in six instances. Two varieties of this form are also distinguished by M. Tanquerel, according as the coma exists simply in a greater or less degree, or as it is complicated with a low delirium appearing in the course of the disease. In the latter case there is a partial rousing from the comatose state, during which the eyes are opened, and a few unintelligible words repeatedly muttered, and some degree of restlessness manifested. These two varieties of comatose encephalopathia may occur either alternately or separately during the course of

the disease, and, as it seems, observe little or no regularity in their appearance or disappearance. "It is this form of encephalopathia," says M. Tanquerel, "which the least frequently presents precursory symptoms, or those which, when they do occur, offer nothing peculiar; its hasty and instantaneous development greatly serves to establish the diagnosis." Subsequently, however, he states that "the coma usually appears only consecutively to one or more attacks of epilepsy, and more rarely at the close of violent paroxysms of furious delirium." (v. ii. p. 297.)

Convulsions are of very frequent occurrence in the cerebral affections resulting from lead poisoning, though rarely observed isolated. Five varieties of the convulsive form are described: 1st. Partial convulsions, in which the face, or one side, or one or more of the limbs are agitated by a series of quick shocks, or there may be spasm of longer or shorter duration. 2d. General convulsions, in which the shocks extend to the whole body, affecting the face and superior extremities most severely, and distinguished from epilepsy by the consciousness being partially retained; several of these convulsive attacks were preceded by excessive pains of the limbs, and very violent colics. 3d. Epilepsy, the most common form in which cerebral disturbance, from the deleterious agency of lead, evinces itself. Thirty-six cases of epilepsy from lead were observed, the paroxysms lasting from two to thirty minutes each. In no one of these cases was there any trace of *aura epileptica* detected, and in one only did the patient utter a cry at the commencement of the attack. At the close of each paroxysm there followed either a comatose state, more or less profound, or one or other of the forms of delirium before noticed, which usually lasted until a fresh paroxysm of epilepsy came on, or the paroxysms of epilepsy succeeded each other, almost without interval. 4th. Epileptic convulsions, a term applied by the author to designate loss of sensation, and clonic spasms in the limbs and trunk, analogous to the convulsed state of epilepsy but differing in degree, and usually accompanied neither by foaming at the mouth nor by stertorous respiration. These spasms are almost continuous, and may last from one to twenty-four hours. 5th. Catalepsy, which has been observed only twice by the author; the appearance of a patient thus affected, is that of a person in a tranquil sleep; no sign of sensation is evinced, even on burning the skin, and it is impossible to arouse or fix his attention. The fingers, hands, forearms, arms, legs, and thighs, placed without support, in no matter what position, whether uneasy or otherwise, remain fixed in that situation for some seconds, or even one or two minutes; then they oscillate a little, and at length fall upon the bed. This state alternates with one in which there is some restlessness of motion and return of sensation, the superior extremities then resisting the attempt to place them in any fixed posture, or to move them from that in which they are found.

In the fourth form of encephalopathia there is a combination of all the symptoms occurring in the three other forms; it presents therefore the type of the disease. The utmost irregularity would seem to prevail in the severity and mode of succession of the different states of delirium, coma, and convulsive paroxysms. M. Tanquerel gives the following as the most usual and most regular.

"The patient is first seized with delirium, sometimes so slight as to escape

the cognizance of the physician ; at the end of some hours, and even sometimes after one or two days, an attack of epilepsy supervenes, at the close of which the patient falls into a drowsy state for some minutes, then seems to arouse to talk at random throughout the day ; the delirium, either tranquil or furious, is then more marked than before the convulsive attack. The same day, the following night, or on the morrow, one or more attacks of epilepsy again supervene. After each paroxysm the drowsiness is deeper and more prolonged. It is interrupted occasionally only by a partial rousing of some minutes, during which the patient mutters a few words, to resign himself anew to sleep. If the paroxysms of epilepsy are frequently renewed, the coma becomes very deep, and death follows. In the contrary case, the patient seems all at once to arouse from his drowsiness, at the end of some hours or of a day." (vol. ii. p. 311.)

With these symptoms, more especially denoting the existence of cerebral disease, there are others combined which are found more or less in every form of the cerebral affection. There is usually some complication with one or more of the other forms of lead poisoning, existing either immediately before or during the attack of encephalopathia. Once in fourteen times paralysis was observed immediately to precede the cerebral symptoms, and once in seven times it appeared during their course. Amaurosis is a pretty frequent concomitant of encephalopathia, and has been observed by M. Tanquerel in ten cases. The circulation frequently remains unaffected in the midst of the severe disturbance of the nervous system, and the pulse is in many cases full, regular, and numbers not more than from seventy to eighty. Usually, however, the pulse is accelerated as the disease advances, often becoming extremely rapid, and considerably depressed ; during the coma it sometimes becomes slow and hard. In one case only was there any inflammatory appearances observed on the blood drawn from a vein ; in twenty others it presented no appreciable alteration. The tongue was commonly natural, but became dry after long-continued furious delirium.

The duration of the disease varied according to the type which it assumed ; the delirium usually disappeared at the end of the third or fourth day, but lasted in different cases from a few hours to seventeen days. The epilepsy recurred in paroxysms at intervals of greater or less duration, from some minutes to six or seven days, and the number of paroxysms occurring in the space of twenty-four hours varied from one to thirty-four. The comatose form usually lasted from one to three days ; while the duration of the fourth form of the cerebral disease varied between four days and seventeen days. Of the seventy-two cases reported by M. Tanquerel, sixteen proved fatal, and fifty-six were cured, whilst of eighty-nine cases which he has collected from other authors, sixty-one terminated in death. In no case observed by M. Tanquerel, did the disease run into meningitis or encephalitis, nor has he been able to find any authentic case of such a termination recorded elsewhere. The subjoined table shows the mortality of the different forms of the disease as observed by the author and other writers, (vol. ii. p. 345.)

		Tanquerel.		Other authors.	
		Cures.	Deaths.	Cures.	Deaths.
1st form — Delirium	- -	16	2	14	15
2d Coma	- -	3	3	2	5
3d Convulsion	-	12	2	7	25
4th Complication	-	25	9	5	16
		<hr/> 56	<hr/> 16	<hr/> 28	<hr/> 61

No inference, however, can be drawn from the cases of writers in general as to the relative mortality of the whole or of any individual form, since many of the milder cases have probably not been recorded; with respect to those of M. Tanquerel it may be observed that although the total number is small, there can be no doubt of the correctness of the conclusion drawn from them, that the comatose and complicated forms are the most to be dreaded. Deep coma, that is, the first variety of this form described by the author, is almost always fatal. In the other three forms of encephalopathia, the most unfavorable prognosis is indicated by the general severity of the symptoms, furious delirium marking the danger in the first, and the occurrence of epilepsy in the third, while in the fourth the predominance of delirium over coma or epilepsy in the general features of the case becomes a favorable sign, especially if it continues for three or four days.

A careful diagnosis is drawn up of the several forms of encephalopathia from cerebral affections in general and from other diseases in which the brain and nervous system may become more or less implicated. Those which are most liable to be confounded with cerebral disease from lead poisoning are nervous delirium, delirium tremens, coma resulting from cerebral disturbance, mental alienation, and ordinary epilepsy. (vol. ii., p. 343.) The similarity of the mild variety of delirium to delirium tremens we have already had occasion to point out, that of the paroxysms of the furious delirium to some states of mental alienation is no less striking. In fact, the disease is mania, only induced by a particular cause. In most instances the history of the case and the occupation of the patient will materially tend to establish the diagnosis. The greatest difficulty will be found with delirium tremens occurring in workmen exposed to the emanations from lead, many of whom are hard drinkers; in such cases, the best mode of drawing the requisite distinction is by a close and careful search after other symptoms of lead poisoning, any tendency to coma especially pointing out the true origin of the affection to be from this last cause.

From a careful comparison of the anatomical appearances in sixteen inspections of persons dying from encephalopathia performed by himself with those recorded by several others, M. Tanquerel establishes, first, that in twenty-one cases there existed a flattening, a crowding together (*tassement*) of the cerebral convolutions, with increased or diminished cohesion of the cerebral pulp, with increase or diminution in the volume of the cerebral mass; secondly, that in nineteen cases yellow discoloration of the cerebral matter was found; and thirdly, that in thirty-two cases there was observed, and only occasionally, slight serous infiltration, sanguineous injection of the membranes, a diminution of consistence, especially in the medullary matter, without change of colour, or, finally, paleness (*décoloration*) or loss of colour in the cerebral substance. (vol. ii., pp. 356-7.) Some of these appearances are considered by the author to be altogether foreign to the disease, others as the effects of the last struggles of the patient, others as secondary phenomena connected with the lead poisoning but exercising no influence in the causation of the symptoms. We regret that we are precluded from analyzing the cases at length, since, as it would seem to us, the hypertrophied state of the brain so frequently observed, though by no means universally present,

has much to do with the production of a part at least of the symptoms observed during life. The dirty earthy yellow discoloration of the substance of the brain, it is admitted, (vol. ii., p. 360,) cannot be considered to be otherwise than allied to the peculiar jaundiced state which forms one of the characteristics of primary lead poisoning, mentioned among the premonitory symptoms. MM. Devergie and Guibourt have detected lead in an appreciable quantity in the brains of two subjects dying of encephalopathia, which were submitted to analysis, and in a microscopical investigation by M. Gluck of a portion of the brain analyzed by M. Guibourt, the white matter of the brain was found remarkably altered in its minute structure. "In many parts of the white matter of the brain," observes M. Gluck, "not only at the surface but also in the interior, the tubes discovered by Ehrenberg appear as if shrunk up; in other points these tubes are well preserved." He subsequently remarks that the alteration could not be attributed to putrefaction, for that the spinal marrow, though much more softened, had notwithstanding preserved its structure. (vol. ii., pp. 362-3.)

Could any inference be drawn from the results of the cases recorded by M. Tanquerel and those which he has collected from other sources, it would appear that the treatment followed in the former was by far the more efficacious; but, as we have before remarked, the milder cases are probably not included among the selected instances in sufficient proportion. In thirty-four of M. Tanquerel's cases, eight of which belonged to the delirious form, two to the comatose, and twenty-four to the fourth form or that in which delirium, coma, and convulsion were all present, no active treatment was had recourse to; one only proved fatal. Of six cases of the delirious form treated by opium, on account of the analogy which exists between this form and delirium tremens, four were fatal and the other two more prolonged in duration than the cases left to the efforts of nature; we must remark, however, that in these cases the opium was by no means efficiently administered. In four cases in which bleeding was had recourse to, the symptoms were manifestly aggravated by its employment, and of four instances where blisters to the scalp, ice and other remedies termed revulsive were used, two terminated fatally. Four patients affected with the convulsive form of the disease were treated by means of opium without benefit, and two of these died. In twenty-one the purgative and other methods prescribed against colic were followed; six of these died, and the disease was protracted in the others. Cold affusion was employed three times: one of the patients died, the two others did not recover until several days after the discontinuance of the remedy. From these data it would seem that in accordance with the opinion of M. Rayer, all active treatment should be avoided, as tending only to increase the cerebral disturbance already existing.

We have hitherto given a close analysis of the contents of these volumes; the concluding portion, in which are some excellent directions to be followed in the different circumstances of exposure to the action of lead, we are compelled to pass over. This, however, we the less regret, as many of the precautions recommended are in actual operation in this country, and others are ably enforced in works to which every one has access.

ART. VIII.

Transactions of the Provincial Medical and Surgical Association.
Vol. VIII.—*Worcester*, 1840. *Plates*. 8vo, pp. xcvi. 435.

WERE it necessary to enhance the advantages resulting from mutual intercourse and combined effort, the published transactions of our various literary, scientific, and medical institutions would form an admirable series of records to which we might apply for illustration and proof. The volumes which from time to time have emanated from these institutions embody the results of the united labours of the most acute philosophers, and contain numerous essays and papers unrivalled for research and the exhibition of mental power. Such of them as are in a more especial manner devoted to medicine, form a valuable record of much that has been effected in like manner and by like means in the cultivation and promotion of medical science and medical practice. Among these the publications of the Provincial Medical Association are characterized by the attention paid to the subjects of medical topography and medical statistics; and we have no hesitation in saying, that from a judicious perseverance in the same course the most beneficial results must ultimately ensue. We may thus hope to arrive at important facts in respect to the causation of disease, and the effects of physical agents in favouring or impeding morbid actions of various kinds, to which we could not attain by any other means. The practical bearing of the knowledge thus acquired is manifest, and the advantages to be derived by the community from pointing out, not only the causes of disease, but the various methods of isolating and removing these causes, or of avoiding and counteracting their operation, can scarcely be estimated too highly. The volume which has been recently issued by this Association affords further illustration of these principles. The advantages of a combination of numerous individuals in the collection of facts are strikingly evidenced by the report on vaccination, which, although defective in some points, is yet a valuable document, and contains much information which we should in vain look for elsewhere. To this, however, we have before had occasion to advert when noticing it in its separate form. It is to the remainder of the volume, comprising the retrospective addresses of Dr. Symonds and Mr. James, and the elaborate observations and experiments on the variolæ vaccinæ by Mr. Ceely, that we are now to direct our attention.

The Address delivered by Dr. Symonds at the Liverpool meeting is an excellent digest of the progress made in the various branches of medicine during the year preceding its delivery; and whether regarded as a record of medical science, or as a literary composition, falls short in no respect of any of its predecessors. A production of this description is obviously not fitted for extended notice, and we can only therefore refer to it as containing, amongst other subjects, notices of the recent researches on the structure of the teeth, by Owen, Nasmyth, Goodsir, and others; on the epidermoid tissues, by M. Flourens and Dr. Henle; of the experiments of Dr. Reid and of MM. Jules Guyot and Casalis, on the functions of the glosso-pharyngeal and other nerves; of the investigations of Drs. Mandl and Henle, Mr. Gulliver and Dr. Golding Bird, on the formation and composition of mucus and pus; of those of Professor Schultz, Dr.

Mandl, MM. Dubois (d'Amiens) and Denis, Dr. Davy, and others, on the blood; of the highly curious observations of M. Turpin on fermentation, &c. There is little of interest in the department of pathological anatomy, but in that of practical medicine attention is directed to the opinions of Dr. Stokes as to the connexion of dysphagia as a symptom with inflammatory affections of the heart, and the indications afforded by the state of the heart for the exhibition of wine in fever: a notice is also given of M. Woillez' observations on the measurement of the chest as a means of diagnosis subsidiary to percussion and auscultation in pulmonary disorders. The principal topics alluded to in forensic medicine are the experiments of Orfila on the detection of poisoning (recent) by the salts of lead, and M. Devergie's proposal of the detection of spermatric animalcules in the urethra as a new test of death by hanging. This test has however since been found inapplicable in consequence of the animalcules having been ascertained to be present under other circumstances. In giving an account of the Army Statistical Reports of Mr. Marshall and Major Tulloch, of M. Quetelet's Essay on the Influence of Season on Mortality, and of Dr. Clendinning's Statistical Researches in relation to Diseased Heart, some excellent observations are made on the value of the numerical method, and the precautions necessary in its employment as a means of directing our choice of remedial measures. The following remarks are so just and apposite that we cannot refrain from quoting them:

"Allowing, then," says Dr. Symonds, "that the value of a remedy has been established by the numerical method, can we therefore apply it to any given case? Or to put the question in another form: it has been proved that eight out of ten cases similar to that before us have been cured by an antiphlogistic treatment, but only six out of ten by stimulants; treated by the one method, the patient's chances are eight to two, by the other only six to four: shall we, therefore, adopt the former? *In the absence of any other reason for determining the choice, we might be glad to lay hold of one so apparently sound and palpable.*

"It is this kind of reason, though not numerically expressed, which leads the routine practitioner to abbreviate his labour. It would be sufficient for a hospital physician, who (if such there be) aims at exhibiting a certain proportion of cures to the cases treated, without caring about the fortunate or unfortunate individuals. It would answer to a military practitioner, whose general might say to him, 'Go into yonder sick tents and cure me a certain per centage, I cannot do with less in the approaching action.' But it would not be sufficient for him who regards his patient, not as a mere unit in a future table, but as a *man*,—a being, the current of whose joyous feelings, and ennobling thoughts, and benevolent exertions, may be turned into the dark chasm of death, or hold on its glorious way, mainly through *his* interference; a man whose loss would make a blank, not merely in a column of figures, but in a loving household, an admiring circle of friends, nay in a whole community. The *individual* then must be considered; and because, as an *individual*, he has a peculiarity of organization, which, when deranged, ought to receive a peculiarity of treatment, we must consider anxiously, and we may often, very often, succeed in ascertaining the manner in which his idiosyncrasy will modify the operation of remedies, which in the majority produce a different result. We shall use the numerical method just as that of ordinary experience; it will *suggest*, not *determine*, the choice of our remedies." (pp. 173-4.)

The concluding portion of the address is occupied with a notice of the principal works published during the year; some remarks upon the re-

cent regulations of the College of Physicians, in the praises bestowed on which we do not by any means agree, and a brief but characteristic memorial of the brilliant and eccentric career of Broussaie.

The Retrospective Address on Surgery delivered by Mr. James, though deficient in method and arrangement, is not less valuable in affording a detailed account of the late improvements and acquisitions to our knowledge in this department. It treats in succession of hernia, hydrocele, lithotomy and lithotripsy, surgical diseases of the vascular system, fractures, luxations, ankylosis, contractions, excision of the joints, amputation, diseases of the eye and of the ear, tetanus, bronchotomy, necrosis, the teeth, syphilis, glanders, diseases of the rectum, inflammation, and obstetrics. Upon each of these subjects much valuable information is collected, and the remarks on fractures are illustrated by two plates descriptive of an ingenious apparatus for keeping up graduated and regular extension. Mr. James, it will be observed, differs from Dr. Macartney upon the question as to the effects of the process of inflammation in the reparation of injured parts, and adheres to the Hunterian doctrines:

"It will perhaps be ever very difficult," he observes, "to determine the exact point below which, if I may be so allowed to express myself, the actions or the efforts of an injured part are directly and entirely reparative, and above which they tend, in very various degrees, either to a more indirect mode of reparation, or on the contrary to destroy that which they cannot repair; still, with respect to the question, whether these are or are not modifications of the same actions, I must with great deference say that my own opinion accords with that ascribed to Mr. Hunter. If this question were confined to the process of the reparation of wounds by the first intention, it would not have been very material; but if the doctrine leads further, as it really does, and we are rather to regard inflammation as the opposite in all cases of the reparative process, it must be viewed with great distrust, and the many facts which tend to establish a contrary opinion ought to be well weighed before it is received." (pp. 247-8.)

The following remarks upon the treatment of inflammation deserve the attentive consideration of those whose opportunities of practice or clinical instruction have not been sufficiently extensive to lead them to discard the theoretical and partial views too often adopted from mere reading or oral teaching:

"Experience has now amply shown, that any preconceived opinions as to the nature of inflammation generally, which blindly lead to the adoption of a depleting or lowering plan of treatment in *all* cases are erroneous. Inflammation, to be studied with success, must be observed in its different varieties. I feel warranted in stating this, when it is in my power to say that bleeding and other antiphlogistics have been fully acknowledged to be injurious in *some* forms of acute inflammation. I may mention purulent ophthalmia in particular: that, on the contrary, wine has been resorted to with advantage in the earliest stages of others, as in certain varieties of erysipelas; and that the most severe kinds of peritonitis that can be imagined, namely, that produced by the escape of the contents of the bowels from wound or rupture, are treated with the greatest chance of success by large doses of opium, a practice first recommended by Dr. Stokes, and borne out by two very remarkable cases related by our able associate Mr. Toogood. I may add that M. Malgaigne has insisted much on the advantage of treating inflammation arising from operations or injury by large and repeated doses of this important remedy; and if it is allowed that the excess of inflammatory action is commonly due to an excessive sympathy, we shall be at

no loss to understand how a remedy so admirably adapted to control this should prove so highly beneficial. In many cases the best antiphlogistic is support adequate to the occasion." (pp. 254-5.)

Towards the conclusion of the address we find, as in that of Dr. Symonds, a brief consideration of the merits of the numerical system, some remarks on the working of the Anatomy Act in country districts, and a short record of Mr. Thomas Blizard and Mr. Henry Earle, both of whom have recently been lost to the profession.

Mr. Ceely's Observations on the Variolæ Vaccinæ, together with his experiments upon the vaccination, retrovaccination, and variolation of cows, with which the volume concludes, are of the highest degree of interest and importance. They need no prefatory encomium, and we feel that we shall best discharge our duty to our readers by at once proceeding to give a careful analysis of this very excellent paper.

Led by doubts upon some of the Jennerian doctrines, and at the same time prompted by the direct application of Mr. Dodd, one of the secretaries of the vaccine section of the Association, Mr. Ceely commenced a series of experiments which he had long contemplated. These were carried on in the Vale of Aylesbury, of the topography of which, its general features, geological characters, &c. he gives a condensed account. Bronchocele and struma, in all its varied forms, are, it appears, endemic in this rich and fertile country, and dyspepsia and neurotic diseases very prevalent. The epidemics are pretty much the same as those in other places exposed to the influences of malaria—fevers, dysenteric and acute gastro-intestinal affections, &c. The sheep in wet seasons, together with the hares and rabbits, suffer extensively from liver-rot, while dry cows and even young heifers are liable to become affected with the *garget* (inflammation and induration of the udder.) The *aphtha epizootica*, a disease which has lately been prevalent on the continent, has been observed in one dairy. In addition to the variolæ vaccinæ the milch cows are subject to various eruptive diseases and spurious pocks as they are termed; among these are the yellow pock, the bluish or black pock, and the white pock, to which the author purposes calling attention at some future period. The variolæ vaccinæ, which seem to have been long known in this locality, are treated of, 1st, as they appear naturally or are produced casually in the cow by the manipulations of the milkers; 2d, as they are produced by vaccination; 3d, by retrovaccination; 4th, by variolation.

1. *Casual Variolæ Vaccinæ*. The natural or casual cowpock is said to appear most commonly during the spring, rarely in the heat of summer, though Mr. Ceely has observed the disease at all periods. It is occasionally epizootic, more commonly sporadic, and extremely irregular in the periods of its occurrence, even in dairies situated in the same immediate vicinity, and apparently placed under circumstances in all respects similar. The disease is considered to be peculiar to the milch cow, occurring primarily while the animal is in that condition, and being casually propagated to others by the hands of the milkers. Many intelligent dairymen are inclined to trace its origin to the equine vesicle, but Mr. Ceely has himself never been able to connect it with this source. Fever, or other constitutional symptoms, either in the animals primarily affected, or in those to whom the disease has been conveyed by the

milker, are very rarely observed, heat, induration, and tenderness of the udder, being generally the first symptoms noticed. It is seldom that a competent observer has the opportunity of seeing the topical symptoms of the primary disease; but according to the statements of the milkers, irregularity and pimply hardness of the teats and udder, especially about the bases of the former, occur in about three or four days after the heat and tenderness of the parts before mentioned. The pimples on the lighter coloured skins are described as being of a red colour, hard, and about the size of a vetch or pea, subsequently increasing to that of a horse-bean, forming vesications, which are soon broken by the hands of the milkers, becoming extremely tender, and rendering the process of milking a very troublesome operation. The following is a condensed abstract of Mr. Ceely's account of the topical symptoms as they appear in the casual affection. About the fifth day after exposure, in thin-skinned animals with chaps and cracks on the teats, small red rather tender papulæ may by close observation be detected near the udder and on the body of the teats. On the sixth and seventh days, in cows with white clear skins, circumscribed indurations are observed; these are generally of a reddish colour, circular, ovoid, or lozenge-shaped, as large as a vetch or pea, or even larger, and with a central depression, in which is visible a small dirty yellowish-white discoloration surrounding a still darker dot or line. The indurations are often interspersed with minute red papulæ of a darker colour, rather acuminate, and frequently abraded at the summits. Some of the tumours have a slender amber-coloured yellowish-brown or brownish-black central crust, and are less prominent than those without the crusts. The tumours on the teats are generally circular, and some of them occasionally smaller than those on the udder; the circumscribed intumescence and induration are also less apparent and less defined, but the pearly or glistening lustre of their margin and part of their centre is nearly as manifest. On the eighth and ninth days some of the tumours appear with more central depression and more elevation of the margin, which is solid, uniform, tense, and shining, extending to seven or eight lines, of a glistening white pearly or silvery hue, and in the centre of many is observed a bluish or slate-coloured tint. Around the base a narrow pale rose or light damask areola, not more than a line or two in width, is often apparent. In others the central crust has increased, and is yellow, brown, or black; a few appear a little pustular in their centres. A few small conoidal vesicles, from the size of a pin's head to that of a pea, some of which have a slight depression on the apex, also appear to have subsequently risen on the teats; but generally the majority of the tumours on these parts are more or less abraded, and lymph is seen exuding from the centres, with the cuticle loose or partially detached, raw surfaces, brown or black incrustations, and other alterations in their natural characters and appearance. Between the tenth and eleventh days the disease in general reaches its acmé; the tumours are often from eight to ten lines in diameter, the centres and central edges of the intumescent margin are of a deeper blue or slate-colour, and the areola, usually of a pale rose-colour, is seldom more than four or five lines in extent, under which the integuments are deeply indurated. The lymph now becomes abundant, raising the cuticle and forming a globular or conoidal vesicle, or freely flowing out from its rupture. Other tumours have an extended brown or

black central crust, either slightly acuminate or depressed; others have become flatter, entirely incrustated and perfectly passive. The tumours on the teats undergo similar changes, but in consequence of being for the most part early abraded, ruptured, and irritated, present considerable modifications in the form and appearance of the crusts, the interfuent vesicles being often denuded of cuticle, raw, swollen, with elevated margins, and discharging blood, lymph, and pus. From this period the induration and intumescence subside, the incrustation and desiccation proceeding until from the twentieth to the twenty-third day, when the crusts spontaneously separate, leaving shallow, smooth, oval, or circular cicatrices of a pale rose, white, or whitish colour. On the teats, however, where the process has been disturbed, large black, solid crusts, often more than an inch or two in length, are to be seen in different parts, some firmly adherent to a hard and elevated base, others partially detached from a raw, red, and bleeding surface; in other parts the surface is denuded, florid, red, ulcerated with small central sloughs, secreting pus and exuding blood, the teats being excessively tender, hot, and swollen. (pp. 307-12.)

The regular duration of the disease would seem to be from twenty to twenty-three days, the eruption appearing about the third or fourth day after exposure, reaching its full development in from six to seven days, and declining in five or six more; the crust separates in about five or six days from its formation, leaving a cicatrix behind.

Various irregularities and anomalies occur in the duration of one or more of the stages of incubation, eruption, decline, and incrustation, &c., in the size, form, colour, and general characters of the vesicles, in the quantity and quality of the lymph, in the colour and extent of the areola, &c., which Mr. Ceely carefully describes, contrasting these variations with the more usual appearance of the disease. Some of these deviations from the regular progress depend upon differences in the thickness of the skin of the animal; others, which are more apparent than real, upon the colour, —the preceding description referring to the disease as it is seen in animals with light skins; others upon peculiarity of constitution, &c.

“An anatomical examination of the structure of the vesicle, just before it attains maturity, shows that its colour, indurated margin, and central depression, depend on the existence of an adventitious membrane formed in the corium, and secreted by the papillæ. It is raised in the form of a zone, and is intimately connected with the epidermis. It has a cellular structure, in which is secreted and contained a clear viscid lymph. The cells appear to be arranged in two concentric rows, and are separated from each other by whitish radiating partitions, which, at their converging extremities, are united by a central membranous band. The dusky central spot which marked the first change of the pimple into the vesicle, and which has now become darker and more distinct, seems to be caused by a greater or less degree of separation and desiccation of the epidermis, stretched over a crypt-like recess, which contains a small quantity of semi-concrete lymph-like matter, occasionally a turbid opaque fluid. This cellular, adventitious, membranous conformation, though differing in extent and amount in different vesicles, is invariably present, and is not less essential than diagnostic. . . . The lymph within the cells having become more abundant and less viscid, and somewhat opaque, bursts and breaks up the cells and their connecting band, separates the epidermis from its attachment to the subjacent adventitious membrane; and the vesicle, losing its central depression, becomes more or less acuminate, presenting a conoidal or semi-globular form. The

lymph soon acquires a pale straw colour, or light amber hue, and speedily becomes more serous, turbid, and opaque." (pp. 317-8.)

We cannot follow these observations further; but the whole account here given of the apparent anomalies and irregularities of genuine cowpock is faithfully drawn up, and the tracing of these out to their respective causes satisfactorily effected. The descriptions are illustrated by two plates.

In connexion with the observations on the natural or casual cowpock in the cow, is an account of the same affection casually induced in man, which will be read with much interest. Mr. Ceely is of opinion, that the casual cowpock, though not so often met with as it was forty or fifty years ago, is yet, notwithstanding the progress which vaccination has made among the peasantry, of more frequent occurrence in the Vale of Aylesbury than in many other parts. Cases, however, of spurious eruptive disease, communicated from the cow and mistaken for genuine cowpock, are yet more frequent, a circumstance which it is of importance for the practitioner residing in similar districts to bear in mind, since by leading to the neglect of correct and efficient vaccination, fatal consequences have ultimately resulted from subsequent exposure to the infection of smallpox. Casual cowpock is not unfrequently met with in persons who have had smallpox or been previously vaccinated, in some also who have before gone through the casual disease. The appearances which the casual cowpock presents in man have been admirably described and delineated by Jenner; but, according to the experience of Mr. Ceely, considerable variety exists in the casual as well as in the inoculated form of the disease, both in the intensity of the constitutional symptoms and in the character of the vesicle, extent of areola, &c.

"Instances are occasionally met with, (arising probably from an insufficient application of lymph, or a local or constitutional indisposition to receive the disease in the usual way,) where the vesicles are imperfectly developed, and there is little or no obvious constitutional disturbance, exhibiting a marked contrast to the local or general effects on other individuals affected at the same time from the same source. I have seen such cases followed by distinct though mild smallpox. From these occurrences, and others presently to be related, I have been accustomed to consider milkers liable to smallpox, contrary to their own expectations: first, from having been the subjects merely of the spurious diseases; secondly, from imperfect vaccination at a late period of the disease, with *deteriorated* and purulent virus, or even with *perfect* lymph, of which they had not at the time been sufficiently susceptible." (p. 336.)

Of the spurious eruptions liable to be confounded with the genuine vaccine, the white pock would seem to lead to the most frequent mistakes. "On very thick skins, about the sixth or seventh day of its existence, it sometimes appears as a raised, circular, well-defined, firm vesicle, with a small violet or pink areola, and a slight central depression, with a light brown discoloration." On close examination, however, it will be found to be neither cellular in its structure, nor possessed of fluid contents.

The mode of procuring primary cowpock lymph, and the precautions necessary to be observed in practising vaccination with lymph of this description, are here carefully described, and the difficulties, frequent failures, and disappointments, which are liable to occur before the virus becomes sufficiently assimilated to the human constitution to ensure its

ready transmission from one individual to another, are pointed out. Often in constitutions either naturally insusceptible to or only imperfectly affected by primary lymph, subsequent vaccination with ordinary lymph has succeeded. A similar difficulty was also observed to arise with lymph derived from the vesicles of casual cowpock on the hands of the milkers, and in the earlier removes of lymph taken from the primary vaccinations; even in the most successful, the several stages of the process are commonly more or less protracted, the character of the vesicles, although they are frequently large and well developed, is on the contrary often defective in these points; but, says Mr. Ceely, "they admit of very remarkable improvement by transmission of the lymph through a series of well-selected subjects, by which process also in a very short time most of the defects, and some of the evils, connected with the use of primary lymph may be dissipated, and the lymph rendered milder and more suited to general purposes." (p. 348.)

2. *Vaccination of the cow with primary lymph.* The process followed by Mr. Ceely for the effecting of this object differs from the casual vaccination of the cow by the milkers, in the designed application of the lymph through punctures artificially made on parts selected as being appropriate for its reception. The animals chosen were *sturks* (young heifers), with a view of ascertaining how far other than milch cows were susceptible. Some of these, about ten months old, were vaccinated with lymph taken from a milch cow in the inside of the ear, on the teats, and near the vulva. The punctures in general were early inflamed, but the papular stage was not well marked, and appeared postponed; the vesicles were normal, but declining on the eleventh day. The only constitutional affection observed was a slight acceleration of the pulse. The lymph taken from these vesicles on the tenth day, when transferred to man, produced an affection which differed in no respect from that produced by primary lymph from the milch cow, with the exception that the inflammation and induration at the base of the vesicles were less considerable, and the subsequent scars, though well defined, rather less deep.

3. *Retrovaccination.* In Mr. Ceely's experiments upon retrovaccination, or vaccination of the cow by humanized lymph, performed chiefly upon the *sturk*, with either dry lymph or lymph preserved in capillary tubes, the success was often very uncertain. Four of these experiments are detailed: the lymph employed was in one of several years' standing; in another, lymph from the Smallpox Hospital, where it had been in use little more than two years; in a third it was variola-vaccine lymph of the nineteenth remove; and in the fourth, retrovaccine lymph of the fifth remove from No. 2. The general results obtained with the lymph thus generated, when transferred again to the human subject, were a retardation in one or more of the stages, and a slight apparent deterioration in the characters of the vesicle produced. It would seem to have suffered a temporary impairment of its activity, rather than to have gained power by the retransmission through the cow, although it should be observed that in the course of a very few removes it regained its former efficiency.

"Lymph which had passed from arm to arm with the greatest promptness and facility, and produced the finest effects in its first removes from the cow

vesicle of the retrovaccinated cow, is not so readily absorbed by many individuals. It rarely fails; but papulation is retarded, and though the vesicle may attain maturity at the normal average period, the completion of that stage is frequently postponed. The vesicles are often smaller, and the disease really not so well developed, as by the stock from which it was derived. But these changes do not appear after the second or third remove. The lymph is restored to its former qualities, and produces its former effects. Some of the retrovaccine lymph of the second experiment, transmitted to the Smallpox and Vaccination Hospital, from whence it was originally derived, was passed through a long series of subjects, under the inspection of Dr. Gregory and Mr. Marson, who, though better able to make the comparison, were unable to detect any sensible difference in its local or constitutional effects after the second remove. On the third remove it became 'very fine,' as it was before its transit through the cow." (p. 368.)

We agree with the author in the inferences which he is disposed to draw from these experiments, (which, as far as they go, confirm the conclusion at which we had before arrived, as to the questionable utility of the proceeding,) compared with the results of his experience in cowpock generally, that "primary vaccine, passed by artificial means through a series of cows, would lose much of its acrimony, and produce on man a milder but abundantly active and characteristic disease; but that humanized vaccine, by a similar process, should ever acquire all the attributes of primary vaccine, or become so much more *brutalized* as to deserve the epithet of 'renewed,' is more than many are prepared to expect." (pp. 368-9.) It is well observed, that the general practice of vaccinators in selecting their lymph from the most perfect and well-developed vesicles in itself tends to support these conclusions. Some excellent remarks upon the question as to the actual degeneration of the vaccine virus follow, in which the effects of warmth of climate, long-continued use, repeated transmissions, &c., are considered. So long as the lymph remains active, producing a well-developed vesicle, regular in its stages, and affording abundance of clear and limpid lymph, it is surely unnecessary to resort to the cow for fresh supplies of the primary virus; much less is it requisite to have recourse to the troublesome and difficult process, at best of doubtful efficacy, of retransmission through that animal:

"But when lymph is found uniformly deficient in infecting property, vesicles abnormally rapid in their course, at their greatest development on the seventh day, yellowish in appearance on the eighth, with turbid lymph, central desiccation on the ninth, and a miserably small crust falling on the fifteenth or eighteenth day, common prudence dictates its discontinuance, and urges the adoption of a new supply, although constitutional symptoms may not be absent, for *weak* lymph may not be better than *late* lymph." (p. 376.)

Six plates of the retrovaccination of the cow are given in illustration of the examples adduced.

4. *Variolation of the cow.* In consequence of the doubts thrown upon Dr. Sonderland's experiments, and the inferences which he had deduced from them, Mr. Ceely resolved to investigate anew the alleged origin of cowpock from man, and the correctness of the opinion as to the rarity of the disease of late years in the cow. After careful and extensive enquiry, the comparative rarity of cowpock was ascertained, and the disease was found to occur under the following conditions: first,

during epidemic smallpox, no cases of variola being known in the neighbourhood; secondly, when variola was prevalent in neighbouring towns or contiguous villages; thirdly, when cases of smallpox occurred in the same village with the affected farms. Mr. Ceely has, however, never succeeded in tracing out positive or probable intercourse between the affected cows and persons labouring under smallpox, except in one instance, in itself perhaps not entitled to much weight. The rarity of the cowpock in the cow, attributed by Dr. Sonderland to the diminished frequency of variola since the introduction of vaccine inoculation, having been ascertained, and in the cases which occurred no direct evidence having been obtained as to the dependence of the one disease upon the other, Mr. Ceely determined to put the matter to the test of experiment. In the first instance Dr. Sonderland's method of covering the cows with infected clothing was had recourse to, but the results were altogether inconclusive, no effect having been produced either from the experiments on the one hand, or from the subsequent inoculation of the animals with smallpox virus, with the vaccine, or with retrovaccine matter on the other. Mr. Ceely then undertook a series of experiments upon variolous inoculation, subjecting several young heifers to this process. To these we have before had occasion to refer in noticing the report of the vaccination section. (Br. and For. Med. Rev. Vol. IX. p. 81.) We shall here quote the second experiment of the series as being not open to the objections which might be alleged against the first, the progress of which was interfered with by subsequent vaccination.

“*Experiment second.* White sturk, thin skin, [which had been inoculated with smallpox matter fourteen days previously without effect,] February 15th, reinoculated with smallpox virus of the seventh and eighth day (*variola discreta*) on the left side of the vulva and under fold thereof, as before, and near the verge of the anus. Virus liquid, some pellucid, some opaque and puriform, in capillary tubes, was forced into eight punctures, which were deluged with it; the punctures being afterwards irritated with points deeply charged with the same, which were suffered to remain in the punctures. Third day, nothing remarkable. Fifth day, four upper punctures near the verge of the anus enlarged and elevated; four on the under fold of the labium, elevated and red, but less enlarged. Sixth day, all present the appearance of the vaccine vesicle. The four upper are larger, but seem only tubercular; four lower on the under fold of the labium have a deep damask hue, and appear like oval or circular solid elevated rings, with central depressions; from one of these took clear lymph with much difficulty, and scantily charged thirty-nine points. Seventh day, upper tubercles seem diminishing, lower vesicles seem flatter but broader. Eighth day, four upper still appear tubercular, of a lighter colour than their ground; four lower vesicles rather augmented, have a light damask hue. Took lymph again from one of them; the other three, not readily yielding lymph on a careful puncturing, were not further disturbed, from a desire to witness their progress, slight central crusts. Ninth day, the four vesicles enlarging; again opened the inner margin under the daily increasing central crust of the vesicle first opened, and charged twenty points; tubercles diminishing. Tenth day, one of the tubercles rather larger; four lower vesicles increasing. Charged twenty-seven points. Vesicles have a bluish, reddish, glistening appearance; two of them rather red at the base; one or two rather raw on each side. Eleventh day, brown crusts over the centre of the vesicles, which appear declining. Twelfth day, declining, with increasing crusts of a blackish brown colour, within a slightly-elevated margin. Vaccinated in several punctures on the margin of the right labium with many points, well charged with sixth-day

retrovaccine lymph; two removes. Punctures slightly tumid for a day or two, but quickly subsided. No result. March 12th, four scars as large as peas, in the situation of the four vesicles, depressed, pale rose colour. *Reinoculated* with smallpox virus (confluent), fifth day, in four punctures, on inside of left labium. *Revaccinated* in three punctures, many points, of fifth and seventh day lymph from a child. No result." (pp. 385-7.)

The third experiment was a failure. Every precaution to avoid error seems to have been adopted in these experiments; the smallpox virus was taken by Mr. Ceely himself on newly-prepared points which had never been used before; and for the second experiment new capillary tubes were charged: the subjects from which the virus was taken were healthy young men, the pocks being remarkably fine, large, plump, and numerous. The first experiment which, in consequence of vaccination having been performed on the ninth day of variolation presents, as Mr. Ceely observes, the application of Bryce's test in the cow, is illustrated by six beautiful coloured plates, in which the simultaneous progress of the variolous vesicle, and of the subsequent vaccine vesicles rapidly overtaking it is faithfully delineated. The drawings are taken on the tenth, eleventh, twelfth, thirteenth, fifteenth, and sixteenth days of variolation, corresponding with the second, third, fourth, fifth, seventh, and eighth of vaccination, the whole of the vaccine vesicles as well as the variolous one being at their height on the fifteenth day of variolation, and manifestly on the decline on the sixteenth. The second experiment is illustrated by seven plates, representing the appearances respectively observed on the fifth, sixth, eighth, ninth, tenth, twelfth, and twenty-sixth days, the last plate showing the smooth pale marks left after the fall of the crusts. Both animals were reinoculated and revaccinated without effect. No indisposition was observed during the progress of the disease; and increased heat and redness of the mucous membrane of the vulva with slight acceleration of the pulse were the only symptoms noticed.

Mr. Ceely states it as his opinion, that were we able to manipulate the animal with variolous matter in the same manner as the best vaccinators of the cow (the milkers) do involuntarily with cowpock matter, we might expect a larger measure of success; but as this is manifestly not attainable, he throws out some valuable suggestions as to the selection of the subject, the season of the year, and the mode of operating, best fitted to promote success in like experiments. The teats and udder of a milch cow, having a thin skin, and not too old, should be chosen for the operation, and care taken to ascertain that the animal has not been previously the subject of the vaccine; the back part of the udder or base of the teats are the most preferable situations, as being more out of the way of the milker; if a sturk or young bull be employed, then the lip of the vulva or the scrotum are the best parts. The skin should be freely incised, though superficial wounds of long standing, in imitation of the chaps and fissures on the teats, which favour the reception of the casual vaccine, would probably answer well. Liquid smallpox lymph of the fifth or sixth day should be used abundantly in preference to points. Extreme heat and extreme cold would seem to be alike unfavorable, while on the contrary a warm, close, moist atmosphere, such as it is well known is favorable to the propagation and malignancy of smallpox,

would probably be advantageous. "Many punctures, much lymph, every natural advantage, and all the resources of art, seem necessary to ensure success to a moderate extent." (pp. 399-402.)

Mr. Ceely then proceeds to relate the effects of the lymph, illustrating his remarks by examples and plates. In the first example given, his assistant, Mr. Taylor, had accidentally inoculated himself from the matter of the single variolous vesicle developed in the first experiment on the cow; he had been previously vaccinated in infancy, and had subsequently had modified smallpox; the result was modified vaccine with a general eruption of roseola and vesicular or vaccine lichen. Lymph taken on the tenth day from the variolous vesicle referred to, was introduced into the left arm of five children, four punctures in each; in two of the children two vesicles were produced, in two others one only, and in one the punctures all failed. The vesicles in two especially were very fine, with full areola; the primary constitutional symptoms were slight in all; the secondary symptoms were proportionate to the extent and character of the areola. One child, Joseph Woodbridge, in whom the areola was very extensive, suffered severely, and had roseola with vomiting and delirium. Lymph of the fifth day from the vaccine vesicle of the same animal, together with lymph of the tenth day from the variolous vesicle, was inserted into two children, three punctures being made with each kind of lymph on each child; in one the retrovaccine lymph failed, while the variolated lymph produced two very fine active vesicles; in the other, both sets of punctures took effect, those with the retrovaccine being more early developed. In the subsequent removes it was impossible to discover any difference between the course and effects of the lymph derived from the variolous vesicle of the tenth day, and that from the retrovaccine vesicles of the fifth or seventh day.

Of the effects of the lymph from the second sturk we shall select Emma Jaycock as an example, since the lymph subsequently kept up by Mr. Ceely was derived from this source. She was fourteen years of age, of dark swarthy complexion, thin skin, and rather florid. Two points of sixth-day primary variola-vaccine lymph, and four of eighth-day lymph were inserted into six punctures. On the fifth day, four of the papulæ had ash-coloured summits, and seemed vesicular, two were doubtful. On the seventh day, there were five small, distinct, reddish gray or ash-coloured vesicles, one very small. On the eighth day, the vesicles were advancing, of unequal size and of irregular form. She had been slightly indisposed on the fifth and sixth days, the axilla was painful on the seventh day, and she was then giddy and sick, but felt worse on this, the eighth day. On the ninth day the areola commenced, and she complained only of headach; on the eleventh it was fully developed, when all her symptoms returned in an aggravated form. On the twelfth day it declined, but the turgid vesicles having burst, renewed inflammation and induration, with circumscribed sloughing and ulceration of the skin ensued, and rather deep scars were left. (pp. 409-10.)

"Her brother, Lewis Jaycock, aged twelve, was vaccinated from her vesicles on the seventh day; he had a dark dusky complexion, and very thin skin, and was not so florid. He exhibited papulæ in every puncture on the fourth day, all of which were vesiculated on the fifth, on the evening of which day his axilla was sore; he felt headach, was giddy and sick. On the sixth day all

these symptoms had rather increased, the vesicles were advancing; thirty-eight points were charged, and two children vaccinated from him, and he was re-vaccinated with his own lymph. On the seventh day he was in all respects better; vesicles advancing; took thirty-eight points and vaccinated a child. On the eighth day the areola commenced, and the *test* vesicles were forming. On the ninth, areola pretty extensive, though pale, from the character of his skin, when headach, &c. returned. On the tenth areola increased, but only two vesicles were entire; the rest spontaneously burst, or were rubbed; still complains. On the eleventh day they were nearly all destroyed. Here the vesicles were remarkably small, but not so on the subjects vaccinated from him, on the three children (two infants), all healthy and robust, with thick skins, nothing could be more satisfactory than the character of the vesicles, and the evidence of constitutional affection." (p. 413.)

These cases, as well as those of the third, fifth, and fourteenth removes, are illustrated by plates, showing the progress to have been in the highest degree satisfactory. Mr. Ceely gives the following summary of the development and subsequent course of the vesicles in those who were the subjects of his experimental researches.

"In the majority of instances, in propagating from arm to arm, distinct papulation was apparent on the second day; on the third it was not only visible, but elevated and well defined; on the fifth and sixth, vesiculation was abundantly obvious, and lymph was often taken on those days; on the seventh day vaccination was frequently performed, and points were often charged; on the eighth the vesicle commonly exhibited a bold, firm, and glistening aspect; between this period and the ninth day the areola generally commenced; (but in young infants, with tense and sanguine skins, it appeared *early* on the eighth;) by the tenth day the vesicle was commonly in its greatest beauty and highest brilliancy, glistening with the lustre of silver or pearl, having the translucency and appearance of crystal, or shining with a pale blue tint, occasionally of a dull white or cream colour, bold and elevated, with a narrow centre and broad margin, or flat and broad in the centre with an acute margin, occasionally not raised above the level of the skin; on this and the eleventh day an extended, and generally vivid areola existed, with more or less tension and induration on the integuments; at this time the lymph was frequently pellucid, and often perfectly efficient. From the eleventh to the thirteenth day gradually increasing; in many individuals, both children and adults, sometimes the entire vesicle, at others only the central parts, reflected a blue or slate-coloured tint from the congested or ecchymosed subjacent adventitious structures, proportioned to the texture and degree of translucency yielded by its desiccated epidermis. On the thirteenth and fourteenth day, particularly on clear skins, moderately thick, the vesicles attained a considerable size, measuring often in their longest diameters six and a half or seven lines, and acquired a light-brown centre, from commencing desiccation, which was surrounded with an outer margin of dull white, or pale dirty yellow, soft and flaccid, and still possessing fluid contents. During this period the areola, of a dull red or damask hue, would revive and decline again and again, and even to the sixteenth or eighteenth day, the period to which complete desiccation was frequently protracted. The crust commonly partook of the form of the vesicle; it was often prominent and bold; varying in colour from that of a chesnut to that of a tamarind stone. It fell generally about the twenty-third or twenty-fifth day, often later. . . . leaving cicatrices of variable depth and extent." (pp. 414-16.)

In none of the adults, with the exception of Mr. Taylor's case, was there any attendant eruption, nor in any child the slightest approach to a varioloid character; roseola, strophulus, and lichen being the principal eruptions noticed to accompany the development of the vesicle in children.

We have thus endeavoured to give an analysis, or rather a condensed abstract of the contents of this important paper; and have only to remark, in conclusion, that the highest credit is due to Mr. Ceely for the care and precaution with which his experiments were performed, for accuracy and fidelity in detailing the facts observed, and for the admirable manner in which they are illustrated and commented upon throughout. In every future history of vaccination the name of Mr. Ceely will be recorded with the honour due to that of an improver of medical science, and a benefactor of his fellow-men.

ART. IX.

Crania Americana; or a Comparative View of the Skulls of various Aboriginal Nations of North and South America; to which is prefixed an Essay on the Varieties of the Human Species. By SAMUEL GEORGE MORTON, M.D. Professor of Anatomy in Pennsylvania College, &c.—Philadelphia, 1839. Folio, pp. 296. *With Seventy-eight Lithographed Plates, and a Coloured Map.*

WE have often regretted that the opportunities of original research which so abound in a newly-settled country have been so scantily embraced by our medical brethren of the United States; and that, in their zeal for the acquirement of the treasures of foreign science, they should so far overlook those in their own possession, of which they may justly be called upon to render an account. The work before us, however, goes far to redeem the national character; for it is one which any country might be proud to have produced. It consists of a series of delineations of the most characteristic specimens, taken from a much larger number in Dr. Morton's possession or placed by friends at his command, of the various aboriginal nations of the American continent; several of which are now extinct (some having disappeared many centuries since), and others are rapidly becoming so. These delineations have evidently been executed with great care. The fidelity of the outlines was secured by a mechanical contrivance; and so much attention has been paid by the author to their accurate completion, that many of the plates have been drawn the second and even the third time; and in several instances the entire edition was cancelled in order to correct inaccuracies that had previously escaped observation. As specimens of art they may rank very high; and having had occasion to speak more than once in rather depreciating language of American wood-engraving, we gladly take the opportunity of giving this example of American lithography its due meed of praise.

The volume is dedicated to our illustrious countryman Dr. Prichard, "the learned and ingenious author of '*Researches into the Physical History of Mankind*.'" We need scarcely add our own opinion that to no one could this work, "which is designed to illustrate a portion of the same interesting enquiry," be more appropriately inscribed. A second dedication is added, to the author's uncle, Mr. James Morton, of Clonmell, Ireland, by whose liberal assistance, in conjunction with that

of another friend, he was able to extend his work far beyond his first intention.* "I claim, however, some merit," says Dr. Morton, with a justifiable pride, "for having commenced publication when my subscription list bore but fifteen names; and I persisted for a long time on my own resources, although frequently apprehensive that an enterprise which never had gain for its object would add pecuniary loss to numberless vexations." We rejoice to be able to adduce such an instance of disinterestedness on the part of a member of our profession, in a country where, according to the testimony of some veracious (?) travellers, no conversation is ever carried on between gentlemen for a quarter of an hour in which the word *dollar* is not often repeated. But, judging from his second dedication, Dr. Morton's connexion with the "old country" would not seem very remote, and we would fain regard his work as of British origin.

To offer an analysis of such a work without those illustrations in which its chief interest lies would be unsatisfactory to ourselves and unprofitable to our readers. But our desire to present them with some specimens of its character has led us to select a few of the more interesting statements, which will be rendered intelligible by the subjoined outlines. We regard the great excellence of the work as consisting in the *data* with which it furnishes the anthropologist. Dr. Morton's own inferences from these must be carefully separated from them; and we would not be understood as always according with the opinions which we transfer from his pages. He appears to us somewhat deficient in the palæological knowledge which is necessary for the accurate interpretation of the facts he has collected; but we prefer not at present entering upon the many ethnographical questions which he starts, since we feel assured that they will be discussed with all the aid that profound learning and unwearied industry can give, in the forthcoming volume on the American Nations, in Dr. Prichard's Physical History of Man.

As, for the reason just stated, our object is not to give a particular account of the whole volume, but to select from it some of its most interesting novelties, we may pass over with slight notice the introductory essay on the varieties of the human species, since it contains little that will be new to the readers of Dr. Prichard's elaborate treatise. The author does not grapple with the question of the *unity* or *multiplicity* of the species of man; but contents himself with expressing his belief that the different *races* were "adapted from the beginning to their respective local destinations," and that "the physical characteristics which distinguish them are independent of external causes." He forms twenty-two families or "groups of nations, possessing to a greater or less extent similarity of physical and moral character and language;" and these families

* We learn, however, from a review of this work, in the American Journal of Science, that these dedications are only inserted in those copies which were destined for foreign circulation; and that in the American edition they are replaced by others, to Dr. Ruschenberger and Mr. J. S. Phillips, from whom the author received much assistance in his laborious researches. This strikes us as a very ingenious way of paying four compliments at once, and reminds us of some Edinburgh theses we have seen, in which the dedications occupied nearly as many leaves as the composition to which they were prefixed.

he classifies under the five races indicated by Blumenbach. The following is his general view of the American race.

"It appears to me that the most natural division of the American race is into two families; one of which, the Toltecan family, bears evidence of centuries of demi-civilization; while the other, under the collective title of the American family, embraces all the barbarous nations of the New World, excepting the Polar tribes or Mongol Americans. Some writers, however, suppose even the Esquimaux to be a part of the same original stock, partly because there is some resemblance in features, partly from partial analogy of language, and partly again from a determination to merge the American in the Mongolian. It is obvious, nevertheless, that the continent of America was originally peopled, as it yet is, by a very distinct race; and that the Esquimaux arriving in small and straggling parties from Asia, necessarily adopted more or less of the language and customs of the people among whom they settled: hence the Esquimaux, and especially the Greenlanders, are to be regarded as a partially mixed race among whom the physical character of the Mongolian predominates, while their language presents obvious analogies to that of the Chippewyans who border them to the south." (p. 63.)

We shall not follow our author in his description of the characters of the American family, which includes all the aboriginal tribes of North America, with the exception of the Esquimaux; but shall content ourselves with quoting the following fact with which he concludes it, this being of much psychological interest.

"One of the most remarkable intellectual defects of the Indians is a great difficulty in comprehending anything that belongs to numerical relations. Humboldt states that he never saw a man who might not be made to say that he was eighteen or sixty years of age. Wafer made the same remark in reference to the Indians of Darien; and Mr. Schoolcraft, the United States' Indian agent, assures me that this deficiency is a cause of most of the misunderstandings in respect to treaties entered into by our government and the native tribes. The latter sell their lands for a sum of money without having any conception of the amount; so that if it be a thousand dollars or a million, few of them comprehend the difference until the treaty is signed and the money comes to be divided. Each man is then for the first time made acquainted with his own interest in the transaction, and disappointment and murmurs invariably ensue." (p. 83.)

The history of the Toltecan family, which is now extinct as a separate group, offers many points of peculiar interest to the anthropologist. At the time of the Spanish invasion, according to Dr. Morton, it occupied Mexico, which may perhaps be regarded as its centre, the southern part of North America, and the northern and eastern coasts of South America. Between this and the American family there was obviously a great difference in regard to intellectual powers. In the arts and sciences of the Toltecan we have evidences of an advanced civilization. From California to the southern extremity of Peru their architectural remains are everywhere encountered, to surprise the traveller and confound the antiquary: among these are pyramids, temples, grottos, bas-reliefs, and arabesques; whilst their roads, aqueducts, and fortifications, and the sites of their mining operations sufficiently attest their knowledge of the practical arts of life.

"In assigning the geographical limits of the Toltecan family it is not to be supposed that they alone inhabited this extended region; for while successive

nations of that family held dominion over it for thousands of years other and barbarous tribes were everywhere dispersed through the country; and, whether of aboriginal or exotic origin, may have at all times constituted a large part of the population. During these periods of power and greatness an organized feudal system divided the nation into two great classes of nobles and plebeians; and there appears to have been as much objection to the amalgamation of these classes as ever existed in an aristocratic state of Europe. The advent of the Spaniards destroyed all distinctions by reducing both classes to equal vassalage; and three centuries of slavery and oppression on the part of the Spaniards have left few traces of Mexican and Peruvian civilization, excepting what we glean from their history and antiquities. These nations can no longer be identified in existing communities; and the mixed and motley people who now bear those names are as unlike their ancestors in moral and intellectual character as the degraded Copts of Egypt are unlike their progenitors of the age of Pharaoh." (p. 84.)

The mixture of races in America, resulting from the introduction of Europeans and negroes as integral parts of its population, is well known. There are two remarkable tribes, however, mentioned by Dr. Morton, which are restricted to particular localities and with which we are less familiar. Of these, one is that known by the name of the *Mamelukes* of San Paulo, in Paraguay. They are the offspring of Indian women by men of various nations of Europe. The fathers were often outlaws; the mothers the very refuse of the Indian tribes. It is not surprising, therefore, that a race springing from these highly respectable progenitors should be distinguished for its barbarity; and the tribe was for a long time the terror both of European settlements and of the native races. Extensive districts were depopulated, some of the inhabitants being slain and others reduced to slavery; and these atrocious practices were only done away at last by the severest measures on the part of the parent governments of Spain and Portugal. Allied in origin to these are the *Confusos* of Brazil, a numerous community with long and curled hair, "a mean between the wool of the negro and the long stiff hair of the American," from which their origin is sufficiently evident.

The account of the individual crania commences with those brought from Peruvian sepulchres. The great number of dead bodies remaining in a desiccated state in the arid parts of this district has been a subject of surprise to all travellers, and serves to convey an idea of the vast population that has at different times derived its subsistence from that country. We are told, for example, by Wafer, an intelligent voyager, that having landed at Vermejo, in Peru, in the year 1687, he found the vicinity of the town so strewn with desiccated bodies that, in his own language, a man might have walked a mile and a half and trod on them at every step. The opportunities of obtaining crania are, therefore, sufficiently abundant, and Dr. Morton has examined nearly a hundred. From this examination he arrives at the interesting conclusion, which harmonizes with that handed down by tradition, "that Peru appears to have been at different times peopled by two nations of differently formed crania, one of which is perhaps extinct, or at least exists only as blended by adventitious circumstances in various remote and scattered tribes of the present Indian race. Of these two families, that which was antecedent to the

appearance of the Incas is designated as the *ancient Peruvian*, of which the remains have hitherto been found only in Peru, and especially in that division of it now called Bolivia."

The skulls of these ancient Peruvians are small, very much elongated, narrow along their whole length, with a very retreating forehead; the face projects, and the upper jaw is thrust forwards. The flattening of the forehead is so great as to suggest the idea of artificial compression. In some instances, however, no distinct traces of it can be remarked. Dr. Morton justly observes that "when the forehead of a naturally rounded head has been much compressed by art, the back and lateral parts of the cranium become proportionally expanded in order to make room for the brain that has been displaced from the anterior chamber." This may be observed in every cranium that bears unequivocal marks of artificial compression. Now the heads of these ancient Peruvians seldom present such lateral expansion, but on the contrary are as remarkable for their narrowness as their length. Of their general form the outline (fig. 1) will convey an idea. But artificial compression was undoubtedly practised in some instances; as in the skull of which fig. 2 gives the outline. On this Dr. Morton remarks,

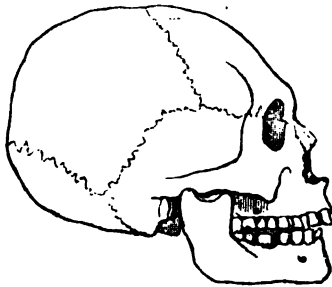


Fig. 1.



Fig. 2.

"It is a feature both of civilized and savage communities to admire their own national characteristics above all others; and hence, where nature has denied an imaginary grace art is called in to supply the deficiency, and even where there has been no such deficiency, human vanity prompts to extravagance. Thus I have seen skulls of this race which must have been naturally very low and long, yet in order to exaggerate a feature that was considered beautiful, compression has been applied until the whole head has assumed more the character of the monkey than the man." (p. 100.)

From the opinions expressed in the volume before us, we gather that Dr. Morton was inclined to regard the skull here outlined as fig. 1, as a type of the cranial conformation of the ancient Peruvian race; and he accordingly remarks,—“It would have been natural to suppose that a people with heads so small and badly formed would occupy the lowest place in the scale of human intelligence: such, however, was not the case;”—for there is distinct evidence that civilization existed in Peru

anterior to the advent of the Incas, which may be dated at about the year 1100; and that many of the monumental remains which are most remarkable for their architecture and sculpture may be traced to the very nation whose extraordinary crania we have been considering. Against this nation the Incas appear to have waged a war of extermination; but some remains of it seem to have existed at the time of the Spanish invasion. But we learn from the Review already alluded to that Dr. Morton has since changed his opinion; and that, although still satisfied that fig. 1 represents an unaltered cranium, he now believes it to be the *only unaltered* one he has found, and therefore not sufficient for the establishment of the national type. "My matured opinion is," he says, "that the ancient Peruvians were a branch of the great Toltecan family; and that the cranium had the same general characteristics in both. I am at a loss to conjecture how they *narrowed the face* in such due proportion to the head; but the fact seems indisputable."

What was the national character of the *unaltered* cranium of the ancient Peruvians, must still therefore remain a matter of doubt, and no inferences can fairly be drawn from the *single* skull figured by Dr. M. in regard to the want of correspondence between cerebral development and national character, as deduced from traditional and monumental remains. To the question how far the character would be influenced by artificial compression, we shall presently advert.

Dr. Morton thinks that there is good reason to believe that the Incas were a part of the Toltecan nation, which was the most civilized tribe of ancient Mexico; and which, after governing it for four centuries, suddenly abandoned it about the year 1050, in consequence of a series of national calamities which gave a fatal blow to their prosperity and power. The Toltecan migrated in large bodies to various parts of the continent; and the coincidence in point of time would at once lead to the idea that the Incas were a part of the tribe. This is borne out by the correspondence in national character and in the form of their crania. Of all the nations of the new world the Toltecan had attained the highest degree of civilization. They lived in society, collecting themselves into cities, under the government of kings and regular laws. They were not remarkably warlike, and preferred the cultivation of arts to the exercise of arms; they also devoted themselves to architecture, and cultivated with care various useful plants and fruits. Nor did they practise those arts only which are considered as necessary to human comfort, for they attended also to those which minister to luxury. The following is Dr. Morton's account of their crania.

"The skull of these people is remarkable for its small size, and also for its quadrangular form. The occiput is greatly compressed, sometimes absolutely vertical; the sides are swelled out; and the forehead is somewhat elevated, but very retreating. The capacity of the cavity of the cranium, derived from the measurement of the many specimens of the pure Inca race, shows, as we shall hereafter see, a singularly small cerebral mass for an intelligent and civilized people. Their heads are remarkable, not only for their smallness but for their irregularity; for in the whole series in my possession there is but one that can be called symmetrical. This irregularity chiefly consists in the greater projec-

tion of the occiput to one side than the other, showing in some instances a surprising degree of deformity. As this condition is as often observed on one side as on the other, it is not to be attributed to the intentional application of mechanical force; and, on the contrary, it is to a certain degree common to the whole American race, and is sometimes no doubt increased by the manner in which the child is placed in the cradle." (p. 115.)

In fig. 3 is shown the outline of a well-characterized Peruvian head; and in fig. 4 is represented the extraordinary deformity in the occipital region of the head of a child. This kind of deformity may be noticed

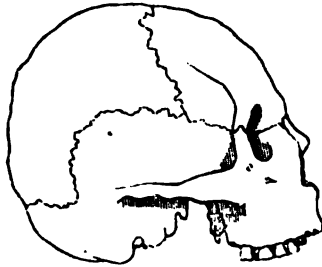


Fig. 3.



Fig. 4.

at the present day in the heads of many South Sea Islanders; and is there obviously occasioned by the very extraordinary position in which the child is carried by its nurse, which causes a constant pressure on one side of the occiput. The system of artificial flattening appears to have continued among the lower orders of Peruvians, however, after their subjugation by the Incas. This was effected, by means of boards and ligatures, in two ways: Either the forehead and occiput were compressed, so that the head became broad from side to side (which, perhaps, may have been with the view of conforming it to the aristocratic standard); or the compression was applied in such a manner as to elongate the head from back to front, which was thought to give an additional ferocity to the countenance, desirable for warlike purposes. The Ecclesiastical Court of Lima passed a decree in the year 1585, forbidding parents, under certain specified penalties, to compress or distort the heads of their children in the various modes which were then in vogue. But the power of the church was not effectual in checking the practice, for it exists among some tribes of Indians at the present day.

The Cyclopean structures erected in Peru during the government of the Incas will bear comparison with those of ancient Egypt; and the wonder is increased when it is recollected that no beast of burthen but the Llama existed in Peru before the Spanish invasion. "At a time when a public highway was either a relic of Roman greatness or a sort of nonentity in England, there were roads of 1500 miles in length in the empire of Peru, carried over heights which overtop the peak of Teneriffe. The feudal system was as firmly established in these transatlantic king-

doms as in France. The Peruvians were ignorant of the mode of forming an arch; but they had constructed suspension bridges over frightful ravines: they had no implements of iron, but their forefathers could move blocks of stone as huge as the sphinxes and Memnons of Egypt." Among the evidences of their civilization, it may be mentioned that, in consequence of the frequency of infanticide, foundling-hospitals were established by the government, in which children were received and provided for at the public expense. The subjugation of such a powerful people by a "handful of brigands," as Dr. Morton terms the invading troop of Pizarro (consisting of sixty-two horsemen and 102 foot-soldiers, of whom twenty were armed with cross-bows and three with muskets), is one of the most remarkable events in the history of nations. It was probably only a repetition, however, of the scene that had been acted four centuries previously, when the ancient Peruvians were invaded by the Toltec emigrants.

Of the physiognomy of the Toltecs, we have some curious remains in bas-reliefs executed by them during their sojourn in Mexico. From one of these the subjoined figures (fig. 5) are copied. "Were it not,"

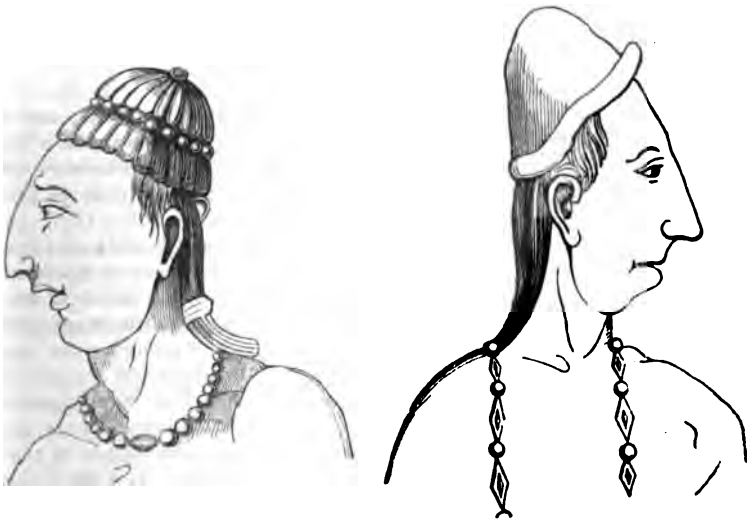


Fig. 5.

says Dr. Morton, "for the evidence of undeniable facts, such configuration of the head would be pronounced altogether ideal. But when the reader has examined the real skulls figured in this work, and especially those of the Natchez tribe (who appear to have been of the Toltec stock), he will perceive in them a distortion similar in kind to that represented in the bas-reliefs of Palenque, but in a much more exaggerated degree." Outlines of the profile and front views of one of these skulls

are given in fig. 6. That the tribe of Natchez Indians was a branch of the Toltecan family, appeared from their traditions and usages. Their

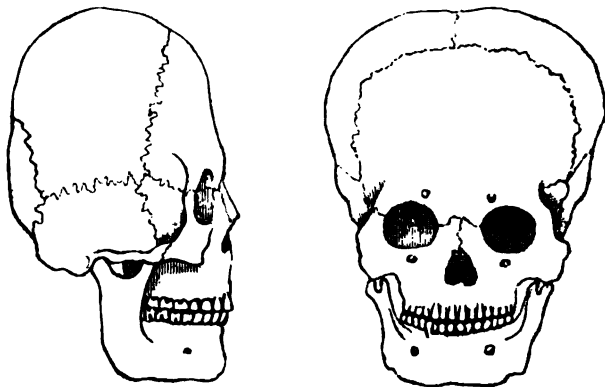


Fig. 6.

migration took place northwards from Mexico; and they allocated themselves at the south-western corner of North America, principally in Florida. They were exterminated by the French in the year 1730. The singular form of their heads was partly due to artificial compression; employed, probably, under the idea of increasing a natural grace. This was effected by means of a bag of sand placed upon the forehead, whilst the occiput lay upon a sort of mould, of which it gradually took the form under the slow but constant influence of this pressure.

In contrast with the vertical flattening of these crania, we may notice the extraordinary horizontal flattening practised by the tribes bordering on the Columbia river, termed "Flat-heads." The cranium, of which a lateral and anterior view is given in fig. 7, is the most extraordinary ex-

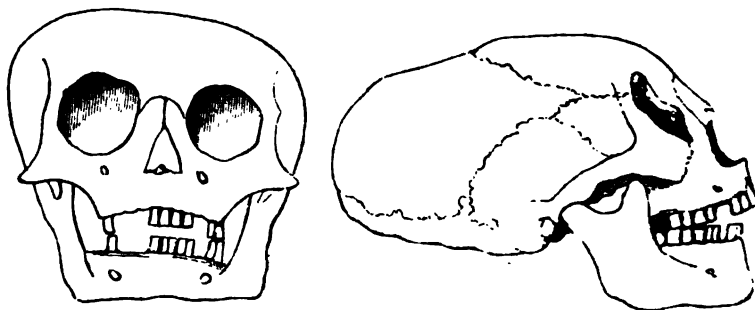


Fig. 7.

ample of this compressing process which has come under Dr. Morton's observation. The vertical diameter is reduced to little more than four inches; the top of the cranium presents a flattened arch not far removed

from a horizontal plane; and the face is protruded until the facial angle is reduced to 66°, the lowest grade probably ever observed in a human skull. The compression has also destroyed, in a remarkable degree, the lateral symmetry of the skull. The following account of the mode in which it is effected, is quoted by Dr. Morton from the account given by Mr. Townsend, who journeyed among these tribes:

"The mode in which the flattening is effected varies considerably with the different tribes. The Wallamet Indians place the infant soon after birth upon a board, to the edges of which are attached little loops of hempen cord or leather, and other similar cords passed across and back, in a zigzag manner, through these loops, inclosing the child, and binding it firmly down. To the upper edge of this board, in which there is a depression to receive the back part of the head, another smaller one is attached by hinges of leather, and made to lie obliquely upon the forehead; the force of the pressure being regulated by several strings attached to its edge, which are passed through holes in the boards upon which the infant is lying, and secured there.

"The modes of the Chinouks and others near the sea differs widely from that of the upper Indians, and appears somewhat less barbarous and cruel. A sort of cradle is formed by excavating a pine-log to the depth of eight or ten inches. The child is placed in it on a bed of little grass mats, and bound down in the manner above described. A little boss of tightly plaited and woven grass is then applied to the forehead and secured by a cord to the loops at each side. The infant is thus suffered to remain from four to eight months, or until the sutures of the skull have in some measure united, and the bone become solid and firm. It is seldom or never taken from the cradle, except in case of severe illness, until the flattening process is completed."

"Either of the preceding processes," continues Dr. Morton, "must be very painful, often giving rise to ulceration of the scalp, and perhaps not unfrequently to death itself; yet so highly is this deformity valued among the Columbia river tribes, that their slaves (who are for the most part derived from the adjacent tribes) are not allowed to practise it. The appearance of the infant during the process is described as both ludicrous and frightful; 'its little black eyes, forced out by the tightness of the bandages, resemble those of a mouse choked in a trap.'" (p. 205.)

According to the concurrent testimony of all travellers who have visited them, these "flat-head" tribes are remarkable for their acuteness and capacity. Dr. Morton speaks, from his own knowledge, of a Chenouk who visited Philadelphia, and who had been for three years in charge of some missionaries. He had in that period acquired great proficiency in the English language, understanding it when spoken to, and replying with a good accent, and general grammatical accuracy. He appeared to possess more mental acuteness than any Indian Dr. Morton had seen; was cheerful, well mannered, and communicative; and all this with a head as much distorted by mechanical compression as any skull of his tribe in Dr. Morton's possession.

These facts, as well as those already stated in regard to the character of the ancient Peruvians, are of much interest in regard to phrenology. Now it can scarcely be denied that, looking at the subject of artificial compression in a phrenological point of view, one of two effects must result: Either the growth of some organs must be greatly impeded and that of others encouraged, in which case the influence on the character ought to develop itself as the individual approaches adult age; or the relative position of the organs will be so changed that common rules for admeasurement will not apply to them; and then the question arises

whether these rules are applicable to uncompressed crania (such as that in fig. 1), of which the form so much resembles that of the skulls that have been submitted to the process. If not, they need to be greatly modified before their results can be *certainly* depended on in *any* case, even within wide limits.

It will be remarked, however, that these observations do not apply to those fundamental principles with which we have, on a former occasion, expressed our concurrence; but only to the independent question, which we must regard as still *sub judice*, of the degree of certainty with which the relative size of the several organs can be predicated from the external configuration of the cranium. The question may be put in this simple form: "Here are two similar crania (e. g. ancient Peruvian), whose aspect indicates a very low degree of intellectual development. There is extraneous reason, however, for the belief that the form of one of these is natural and of the other artificial. How can their respective mental capabilities be predicated, and what difference would the phrenologist make in his estimate of their characters, if (as in many of Dr. Morton's crania) there are no decided indications that either is abnormal?" This is a question to be decided by further observations; and in the mean time we may quote the following from the American Journal of Science:

"Mr. George Combe mentioned in his late lectures at Newhaven, that he had examined the head of a young Indian of about twenty years of age, from the Columbia river. He found the parietal diameter actually greater than the frontal and occipital; the cranium having been compressed, by means of a board and cushions, in infancy. The organs in the superciliary ridge were fully developed; the upper part of his forehead was flat and deficient; his organs of language and form were large. He had studied the English language for two years and spoke it tolerably well. Mr. Combe added that in conversation he was intelligent, ready, and fluent on all subjects that fell within the scope of the faculties of observation, situated in the superciliary ridge; but dull, unintelligent, and destitute equally of ideas and language, on topics that implied the activity of the reflecting faculties, situated in the upper part of the forehead. Mr. Combe considered his mental powers to be in direct harmony with the development of his brain."

In this individual case, then, there was a correspondence between the character and the *artificial* form, such as would show that the *relative development* of the several organs of the brain is modified by compression. Whether this always holds good, we are not yet in a condition to determine. The very decided testimony of travellers to the intellectual powers of these tribes, would seem to render it probable that *displacement* must also occur; in which case there would be a want of that harmony *here* noticed between the external form of the cranium and the capacity of the individual.

At the conclusion of the volume we find a very elaborate series of measurements of the different crania figured in it; on which the phrenological student would do well to bestow much attention, although they do not present any very decided results. Dr. Morton's general opinion, as to the value of the science of phrenology, may be best presented in his own words. The following is an extract from his letter to Mr. Phillips (at the close of our copy, but standing as the epistle dedicatory in the *native* edition), by whom the above measurements were made with great ingenuity and patience:

"In the study of phrenology I am yet a learner; and it appeared to me a wiser plan to present the facts unbiassed by theory, and let the reader draw his own conclusions. You and I have long admitted the fundamental principles of the science, viz: That the brain is the organ of the mind, and that its different parts perform their different functions; but we have been slow to acknowledge the details of cranioscopy as taught by Dr. Gall, and supported and extended by subsequent observers. We have not, however, neglected this branch of the enquiry, but have endeavoured to examine it in connexion with numerous facts, which can only be fully appreciated when they come to be compared with similar measurements derived from the other races of men. Yet I am free to acknowledge that there is a singular harmony between the mental character of the Indian and his cranial development, as explained by phrenology."

Appended to Dr. Morton's ethnographical account of the crania is an Essay by Mr. George Combe "on the Relation between the Natural Talents and Dispositions of Nations, and the Development of their Brains." We had hoped to have found in this Mr. Combe's views on several of the points which Dr. Morton regarded as difficulties in the phrenological interpretation of the data adduced by him. But, as we learn from the preface, Mr. Combe furnished the essay under circumstances which precluded his acquainting himself with what Dr. Morton had written; and his knowledge of details was limited to an inspection of the plates, many of which he compared with the original skulls. He has therefore preferred confining himself to general observations, with the view of enabling his readers to draw their own conclusions from Dr. Morton's delineations and measurements; and being limited in space, he has not introduced any views of the subject which will not be found in most elementary treatises on phrenology. This we cannot but regret, as we suspect the phrenological student needs more guidance than he will find here, in order that his conclusions may be satisfactory. The omission of all notice of the question of artificial compression, which we should have thought the sight of Dr. Morton's plates could not but have suggested, is that which chiefly surprises us. With the spirit of the following remarks, however, we fully coincide:

"The harmony or discord between Dr. Morton's historical delineations and the phrenological inductions which the reader will be enabled to draw by applying the rules now to be laid down, will depend upon the degree of approximation of each to nature. Where discrepancies shall appear, one or other of our views must be erroneous. I solicit the reader candidly to investigate both representations, and not to condemn phrenology at once as chargeable exclusively with error. Imperfect historical descriptions have been given of distant nations, and particularly of barbarous and savage tribes, whose manners have been imperfectly observed, and whose language has been scarcely at all comprehended; and it may ultimately be discovered that the characteristics indicated by the size and forms of their brains have been more correct than the hasty impressions of travellers." (p. 270.)

In conclusion, we have only to express again the gratification we have felt in the examination of Dr. Morton's unique and splendid work, and the hope that he will not relax in the prosecution of his interesting and important enquiries. We look forwards with much satisfaction to the continuation which he has given us reason to expect; and hope that he may obtain sufficient encouragement to enable him to complete his account of the *Crania Americana* in a manner which shall leave little for the anthropologist to desire.

ART. X.

1. *Histoire Complète des Ruptures et des Dechirures de l'Uterus, du Vagin, et du Périnée.* Par F. DUPARCQUE.—Paris, 1836. 8vo, pp. 456.
A Complete History of Ruptures and Lacerations of the Uterus, Vagina, and Perineum. By F. DUPARCQUE.—Paris.
2. *F. Duparcque's vollständige Geschichte der Durchlöcherungen, Einrisse, und Zereissungen des Uterus, der Vagina, und des Perineums, nebst Angabe der Praeservativen und radikalen Behandlung dieser Affectionen, &c.* Von J. F. W. NEVERMANN, M.D., &c.—Quedlinburg und Leipzig, 1838. 8vo, pp. xlii. und 529.
- F. Duparcque's Complete History of Perforations, Lacerations, and Ruptures of the Uterus, Vagina, and Perineum; together with the Means for the Prevention and Cure of these Affections, &c.* By J. F. W. NEVERMANN, M.D.—Quedlinburg and Leipsic, 1838.

M. DUPARCQUE, whose prize essay, "Traité Théorique et Pratique des Altérations Organiques de la Matrice," was noticed with commendation in the Fourth Number of this Journal, appeared shortly after, as a successful competitor for honours in the same department of medical science. In the year 1835 the Société Médicale d'Emulation of Paris offered a prize for the best essay on ruptures of the uterus and vagina, to which well-judged proceeding we owe the first complete treatise on this important subject. Since the time of Guillimeau, indeed, several instances of ruptured uterus have been recorded, and the accident has formed the theme of many monographs by English, German, or French physicians; but the cases are for the most part scattered widely through various journals, and the writers of treatises have formed their conclusions on a very limited number of observations. M. Duparcque has collected sixty-eight cases of ruptured uterus which the diligence of his German editor has increased to 230; a number whence we may make some approach to a right estimate of the circumstances enhancing the danger of the accident or which afford the greatest probability of recovery from its effects.

In his preface the author proposes to treat of the subject in four sections, considering: 1st. Ruptures of the unimpregnated uterus. 2d. Ruptures of the uterus occurring during pregnancy. 3d. Those which take place during parturition. 4th. Ruptures and lacerations of the vagina. It is much to be regretted that this simple division has not been adhered to in the body of the work, for by introducing a fifth section, on ruptures of the uterus after delivery, in which, however, lacerations of the vagina, perineum, and vulva are treated of, M. Duparcque has occasioned great and most unnecessary confusion.

After defining, in some preliminary considerations, the meaning of the terms rupture and laceration, which he regards as denoting instantaneous acts (though the phrase *chronic rupture* has been improperly employed by Madame Boivin and M. Dugés), M. Duparcque proceeds in section i. to treat of rupture of the unimpregnated uterus. This occurrence is exceedingly rare, and, indeed, impossible in the natural condition of the organ. If, however, says M. Duparcque, any cause should produce distension of the uterus, it then becomes, like the impregnated organ, ex-

posed to the action of external injuries ; or the excessive accumulation of blood, hydatids, &c. in its cavity may so attenuate its parietes as ultimately to occasion them to give way, which accident took place in the following case :

"A lady, having ceased to menstruate when forty years old, perceived at the age of fifty that a tumour was forming in her abdomen. This tumour, which was ascertained to be formed by the uterus, enlarged gradually, and ultimately attained an enormous size. Pain in the abdomen occurred at intervals, ultimately becoming insupportable, until, during a paroxysm of agony, the patient experienced a peculiar sensation in her abdomen, the pains ceased, the enlargement of the hypogastric region subsided, and she died on the following day. The cavity of the peritoneum was found filled with an enormous quantity of black blood. The uterus was dilated, its parietes generally were thick and consistent, but became thin towards the fundus, in which situation was a lacerated opening. The cervix uteri was obliterated." (pp. 13-4.)

A second similar case is recorded ; but the observations of interstitial abscess of the uterus which follow are altogether irrelevant to the subject.

In section 11. the author considers ruptures of the pregnant uterus, which he divides into the two classes of lacerations produced by the infliction of wounds and ruptures properly so called. Some interesting observations of recovery after wounds of the uterus are related by the author and others by the translator ; but since they ought not, strictly speaking, to be classed among ruptures of the uterus, we pass to the second division of this section.

During pregnancy, the body of the uterus is the only part liable to rupture, for the cervix uteri continues to be, until the very end of gestation, the thickest part of the organ, while its situation within the pelvis defends it from external injury. The causes which most frequently produce this accident act from without, either mediately, as when violence is inflicted on the abdomen, or immediately, as when the contraction of the abdominal parietes themselves occasions the accident. The pregnant uterus, like a bladder filled with water, can yield but little to compression, and if it is subjected to force exceeding a certain degree it gives way. Ruptures thus produced take place as by *contre-coup*, that is to say, the rent takes place at a distance from the part on which the violence was inflicted, and thus it happens that the uterus usually gives way near its fundus, or a little to one side. Many circumstances, however, concur to preserve the organ from rupture, such as its extreme mobility, the defence afforded it by the abdominal muscles, the resistance of the uterine tissue, of the peritoneum investing it, and of the membranes which form the ovum. One instance indeed (Observ. vii., p. 28,) is related by the author of a blow on the abdomen, severely injuring the fetus without at all damaging the uterine tissue. It has been doubted whether or no the placenta affords any defence from external injuries to that part of the uterus where it is inserted. M. Duparcque decides the question in the negative ; but no great importance can be attached to this opinion, since he erroneously imagines the placenta to be usually adherent to the fundus of the uterus, while the observations of M. Hermann Naegele have satisfactorily proved that its ordinary situation is at the side of the organ.

Four cases are related by the author (Observs. viii.-xi., pp. 32-7,) of rup-

ture of the peritoneal coat of the uterus, an accident to which Dr. John Clarke first called the attention of the profession. Three other cases are added by the translator (Nevermann, *observs.* xiv.-xvi., pp. 19-20); but two only of the seven occurred during pregnancy, the others having taken place after labour had begun. The author suggests the propriety of following Dr. C. Johnson's advice in inducing labour so soon as symptoms (which, however, are usually very obscure,) give reason to fear that this accident has taken place.

Several instances are related of rupture of the uterus from violent contraction of the abdominal muscles, and the external causes having been thus disposed of, M. Duparcque examines the influence of those which act from within the uterus. He is not disposed to allow the possibility of rupture of the uterus simply from extreme distension of its cavity. This opinion is not at all invalidated by the cases, related by M. Nevermann (p. 39), of four women, who having become pregnant after the performance of the Cæsarean section, died during utero-gestation from rupture of the womb in the situation of the former wound, since, as we shall hereafter see, the medium uniting the divided edges of the wound is often of extreme tenuity. The violence of the movements of the fœtus has been supposed capable of rupturing the womb, but from this notion M. Duparcque with reason dissents.

Next follows the consideration of those causes which predispose the pregnant uterus to rupture. M. Duparcque is of opinion that although malposition of the fœtus in utero or the presence of tumours in the neighbourhood of the womb may strongly dispose it to rupture during labour, yet the same can by no means be affirmed of them during pregnancy. Morbid conditions of the uterus, as its attenuation, softening, &c. render it very susceptible of the action of external causes, and always exist in those cases where internal causes have produced the accident. It does indeed appear that a previous degeneration of the pregnant uterus had predisposed it to rupture in every instance where the accident followed the mere contraction of the abdominal muscles or sudden movements of the body, such as may occur in convulsions or in violent fits of anger. M. Cruveilhier, considering the extremely slight causes which have produced rupture of the uterus, while the organ will bear uninjured all the exertions of a first labour, conceives that a softening of the tissue of the uterus precedes its rupture. Dr. Murphy, too, in a paper published in the year 1835 in the *Dublin Journal*, expressed his doubts as to the possibility of the rupture of the healthy uterus except from external violence. The remarkable case recorded by Mr. Green,* in which a cart-wheel passed over the body of a pregnant woman without injuring her uterus, and the unwarrantable experiments made some years since by Professor Ritgen, of Giessen, prove that the abdomen of pregnant women may be subjected with impunity to great compression.

Chapter II. of this section is devoted to an examination of the results of ruptures of the pregnant uterus. The accident invariably proves fatal to the fœtus, and generally, though not always, it causes the death of the mother. Sometimes the mother dies from the sudden shock to the nervous system, but her death is oftener the result of hemorrhage and of

* *Medico-Chirurgical Transactions*, vol. xii., part i.

the consequent effusion of blood into the abdomen. In some cases, however, where the entire ovum has escaped into the abdomen, the contraction of the uterus suppresses the hemorrhage or the retraction of the vessels, which takes place especially in a lacerated wound, prevents a copious bleeding. If the woman has survived the immediate perils of the accident, the dangers of inflammation of the uterus and peritoneum still await her and often terminate her life. Still, there are several cases on record in which the patient has ultimately recovered, and not only lived for years, but has even given birth to living children. When cases have this happy termination, the extruded fœtus becomes inclosed within a pseudo-membranous cyst, and in several instances, the cyst and its contents have undergone the calcareous transformation, and remained for twenty, twenty-five, thirty-four, and even for forty-six years in the abdomen, as was observed by Middleton, Astruc, Caldwell, Cammerarius, and others. In many cases recovery is very imperfect, and the contents of the uterus when expelled into the abdomen excite inflammation and suppuration; the bones of the fœtus are discharged through the vagina, rectum, or abdominal parietes; and the patient dies worn out by protracted suffering.

In chapter III. the symptoms are detailed; but it is only in an advanced stage of pregnancy that we can make a confident diagnosis of the nature of the accident.

In chapter IV. M. Duparcque considers the treatment of ruptures of the uterus occurring during pregnancy. He observes that the dangers to which a person is exposed by this accident depend not so much on the circumstance of the uterus being wounded as on the hemorrhage which may be produced, or on the inflammation and its consequences which may follow the escape of the fœtus into the cavity of the abdomen. If, therefore, we were called to a case where pregnancy was pretty far advanced before any very serious symptom had occurred, although the propriety of non-interference might suggest itself, yet the examples of recovery when the persons have been left to themselves are so few that the operation of gastrotomy or the vaginal Cæsarean section would probably afford a better chance of recovery. Towards the end of pregnancy, indeed, the cervix uteri is often so dilatable, that an attempt to deliver by the natural passages might well deserve a previous trial; or, if the cervix uteri were rigid, incisions might be made into it, a practice which was successfully adopted in a case that occurred to Dr. Smith, of Maidstone.* When pregnancy is not far advanced, gastrotomy is the only means of interference within our power; and M. Duparcque thinks that its employment would afford a chance of recovery to patients who are now abandoned to almost certain death. The other indications of treatment are to prevent or check the disturbance of the nervous system, to moderate or prevent hemorrhage by compression, refrigerants, &c., and, lastly, to combat inflammatory action.

Thirty observations narrated by M. Duparcque illustrate the first two sections of his book, and twenty-four additional cases in the German translation bear testimony to the diligence of M. Nevermann.

Section III. is entitled "Of ruptures of the body of the uterus during

* Communicated by Dr. Locock, in *Med. Chir. Trans.*, vol. xiii., part ii.

labour;" but under this head M. Duparcque, with singular want of method, classes ruptures of the cervix uteri.

When rupture of the womb takes place during pregnancy that organ is purely passive; but when labour sets in the uterus is thrown into an active state, and is in consequence usually the agent of its own rupture. In the intervals of the uterine contractions, indeed, passive rupture may take place, and external causes may burst the uterus during labour as well as in the pregnant state. Ruptures of the uterus during labour differ in their causes, mechanism, and results according as the accident implicates the body or cervix of the organ; and, since a further difference exists between vertical and transverse ruptures of the cervix, M. Duparcque arranges the subject under three divisions, of which the first division treats "of ruptures of the body of the uterus during labour." The occurrence of rupture of the uterus before the membranes have given way is exceedingly rare, for the resistance afforded by the ovum to the contractions of the uterus is the same in all directions, and if the cervix does not yield, the uterus will by degrees cease to act, and will continue inert until rest has restored to it its former energy. But, although unusual, it is by no means impossible, as some have erroneously supposed: and, in confirmation of this statement, M. Duparcque relates two cases, one of which is as follows:

"A woman in labour with her sixth child, suddenly experienced violent pain, followed immediately by the escape of the liquor amnii together with a large quantity of blood, which flowed from a laceration of the lower part and right side of the womb, through which the body of the child had escaped into the cavity of the abdomen, while the head, which had driven before it the orifice of the uterus, remained in the pelvis. The limbs of the fœtus were distinctly felt through the walls of the abdomen, and the hand introduced into the uterus found that the edges of the rent were firmly contracted round the neck of the child, and that the placenta was in the abdomen. Twenty-four hours afterwards the woman died undelivered." (p. 125.)

It is after the escape of the liquor amnii that rupture of the uterus usually takes place. The contents of the womb no longer present an equal resistance in all directions: those points of the uterus in contact with projecting parts of the fœtus have to support all the force of the labour-pains. Sometimes they give way during a violent pain, or the long-continued pressure on the same part causes inflammation or gangrene, which renders the uterus liable to rupture on the slightest cause. Still, in almost all cases of rupture of the uterus, some cause or other has existed from the beginning of labour predisposing the organ to this accident. Such is attenuation of the uterine parietes, which some have imagined may be the result of natural malformation, but which more certainly follows the removal of a polypus, or a wound, or ulceration of the uterus.

Wounds of the uterus, which M. Duparcque here alludes to in passing, are among the most influential causes predisposing the organ to rupture in subsequent pregnancies or labours. Dr. Merrem, of Cologne, struck with the frequent occurrence of rupture of the uterus in women who became pregnant after having undergone the Cæsarean section, investigated the subject, and has shown* that in the nature of the cicatrix, by which

* *Gemeinsame deutsche Zeitschrift für Geburtskunde*, bd. iii. heft 2.

wounds of the uterus are very often closed, we have a sufficient explanation of the accident. It would appear that the wound is not unfrequently closed merely by peritoneum, or, in other cases, adhesions take place between the edges of the uterine wound and those of the divided abdominal parietes, and a fistulous opening into the womb has thus been formed, which continued open for months. Of course, in either of these cases, the uterine contractions in a subsequent labour would soon tear asunder this frail bond of union and expose the woman to all the dangers of ruptured uterus. Sometimes, indeed, the wound is united by a different process, though one not much more secure. Thus, Merrem on performing the Cæsarean section upon a woman for the second time, found the former incision four inches long and three fingers' breadth wide. It was concave instead of convex, like other parts of the walls of the uterus, and was composed of white glistening fibres, with a dilated blood-vessel running close to either margin. In the twelfth volume of the *Medico-Chirurgical Transactions*, Mr. Birch relates the history of a woman who recovered from a rupture of the uterus. Nine years after, having married again, she became pregnant; during labour the uterus gave way, and four days afterwards the woman died. At the post-mortem examination, at which we were present, no trace of the former rupture could be discovered; but its situation, as described by Mr. Birch, corresponded exactly to the place where the uterus had again given way. Dr. Merrem conceives that these cicatrices cause rupture by preventing the natural development of the uterus, and by interfering with its regular contractions.

Softening of the uterine tissue, irregularity of its contractions, and various alterations of its substance, such as scirrhus, (which, although they may increase the thickness of the uterine parietes, diminish its power of resistance,) may be enumerated as predisposing to this accident.

The exciting causes of rupture come next under consideration. In addition to the unskilful employment of instruments, various other causes have been assigned. M. Duparcque investigates their real influence, and illustrates by detail of cases the following conclusions: All ruptures of the uterus occurring during labour are occasioned immediately by the contractions of the organ. So long, however, as the uterus is in a healthy state, both with respect to its structure and to the manner in which it acts, these causes are insufficient to occasion rupture. The causes predisposing the uterus to rupture, act either by diminishing its organic resistance or by impairing its contractile power; and it is in this manner only that such causes as the great size or malposition of the fœtus act, unless they coincide with other predisposing causes. Even when predisposing causes exist it is usually only after the membranes have burst that rupture of the uterus occurs. Lastly, the insufficiency of the greater number of these causes, and the necessary concurrence of several, in order to produce a rupture of the uterus during labour, account for the rarity of the accident, even in those cases where its occurrence might appear to be most probable. (pp. 156-8.)

In Chapters II. and III. the results immediately following a rupture of the uterus, and the symptoms which announce the accident are detailed, without, however, any important addition to what was already known on the subject.

In the second and third divisions of this section, ruptures of the cervix uteri come under notice. The neck of the womb may be torn either vertically or in a transverse direction. The former accident usually takes place when the cervix uteri, though rigid, is susceptible of sufficient dilatation for the head to become engaged within it when the direction in which the distending force acts produces a vertical rupture. In many cases too the unskilful, or ill-judged application of instruments causes this accident. If rigidity of the os uteri should exist to so great a degree as not to admit the head of the child at all, rupture of the neck of the womb may take place in a transverse direction. Such was the accident which occurred to Mr. Scott of Norwich, when a portion of the lower segment of the uterus was torn off by the violence of the labour-pains. When, however, the tissue of the uterus generally is in a healthy state, an extreme degree of rigidity of the os uteri may exist without occasioning rupture. Thus, in a case quoted by Dr. H. Naeglele,* where there existed atresia of the os uteri, the whole lower segment of the uterus, together with the child's head, were driven down to the very outlet of the pelvis: at length the accoucheur, M. Lauverjat, unable to discover the os uteri, made an incision into the organ, the child was expelled by the powers of nature, and the mother perfectly recovered.

Remarks follow on the results of ruptures of the cervix uteri, and on rupture of the periuterine region of the vagina, but want of space compels us to pass over these in order to notice some of the interesting facts collected by Dr. Nevermann in the "General Reflections," which he appends to this part of the subject. (pp. 229-45.)

It had not escaped the notice of Professor Burns or of Dr. Collins, that in a very large proportion of cases in which the uterus is ruptured, the child is of the male sex. In twenty-three of the thirty-four cases related by Dr. Collins, the children were boys; as also in fifteen of the twenty cases recorded by Dr. M'Keever; and Professor Burns's estimate that in three fourths of the cases of ruptured uterus, the children are male, probably does not exceed the truth. Dr. Collins and Dr. M'Keever relying on the measurements made by Dr. John Clarke, assign as a reason for this the greater size of the head of male children; and M. Nevermann gives us the results of the measurements of the heads of 384 children, by Professor Thulstrup, of Christiania, which fully bear out Dr. Clarke's statements.

From a comparison of thirty-three cases of ruptured uterus, Mr. Robertson, of Manchester, concludes that the accident usually occurs within thirteen hours after the commencement of labour. Dr. Collins's cases give an average of 14½ hours for the duration of labour, and though the cases related by Dr. M'Keever do not yield exactly the same results, yet it should be borne in mind that in many of these, rupture had taken place long before the admission of the patient into the hospital. That mere protracted labour is not usually the cause of ruptured uterus is further confirmed by the fact, to which all obstetricians bear witness, of the rarity of the accident in first labours. Of the thirty-four cases recorded by Dr. Collins, seven only occurred in pri-

* Ueber die Verklebung des äussern Muttermunds als Geburtshinderniss in *Medicin. Annalen*. 2 bd. 2 heft.

miparæ; two only in the twenty related by Dr. M'Keever, and only one in twenty-nine cases, of which a table is given by Mr. Robertson.

Much difference of opinion has prevailed as to the part of the uterus most liable to rupture. Capuron, Boivin, Gooch, and M'Keever say, that the neck is usually the seat of laceration. Roederer, Bluff, and Ingleby state that the lower segment of the uterus is the part which, in consequence of its thinness is usually torn; and Ingleby says that laceration generally begins at the cervix, and runs in a longitudinal direction towards the body and sides of the uterus. In thirty-four cases related by Collins, the accident most frequently took place at the junction of the cervix uteri with the vagina: in thirteen at the posterior part, in twelve anteriorly, in two laterally, in one the mouth of the womb was torn, and in six the seat of the laceration was not described. In nine of the cases the peritoneum was uninjured. In no case did Dr. Collins meet with rupture of the fundus.

M. Nevermann gives the following recapitulation of the cases which he has related in his translation:

"Of 230 authenticated cases of rupture of the uterus, sixty-two occurred during pregnancy, and 168 during labour: of these latter, eighty had affected the body of the uterus, nine running in a transverse direction, and sixty-eight longitudinally, and extending backwards and to one side: in three cases, the fundus was perforated partly by the feet of the child, partly by previous ulceration, and in one case only the fundus was rent. In thirty-six cases the cervix uteri was torn longitudinally, and in fifteen in a transverse direction. In four cases the uterus was torn away from the vagina, and in twenty cases there was merely a small perforation of the body, or cervix of the uterus. In the other cases the seat of the rupture is not mentioned. The rupture does not always extend through the whole of the substance of the uterus. In four cases the peritoneum only was torn, and in five cases the uterus was torn and the peritoneum uninjured; and, in all these apparently slight cases, death ensued. The size of the ruptures and lacerations varies much; some have been seen only a quarter or half an inch in length, others nine inches long, or even involving two thirds of the uterus. Sometimes the rupture is merely a small round hole, through which fatal hemorrhage takes place; thus, in a patient of Dr. Collins, who died of sudden hemorrhage on the fifth day after delivery, a piece of the muscular substance of the uterus, about the size of a shilling, corresponding to the projection of the sacrum, was found to have given way, the peritoneal covering remaining uninjured." (pp. 233-4.)

The frequency of ruptures of the uterus is a point about which very different opinions have been entertained. Dr. Dewees thinks that they occur as often as once in every 300 labours; Burns says, one in 940; Ingleby, one in 4000; Bluff, one in 7466; M. Nevermann finds, on a comparison of 406,081 labours, that the uterus burst eighty-five times, which gives a proportion of one rupture to every 4777 labours; not one to every 4788, as M. Nevermann states.

This accident is usually regarded as one of the most fatal that can befall a female, either during pregnancy or in labour; thus, of Dr. Collins's thirty-four cases only two recovered; and of twenty cases which came under Dr. M'Keever's observation, all but two had a fatal result. M. Nevermann states, that in 106 of the 230 cases which he has detailed, the patient recovered; but surely we are not warranted in drawing any general conclusions from cases, some of which occurred in the unimpregnated uterus, others during pregnancy, others during labour.

The observations of M. Duparcque on the treatment are judicious, and well merit attention. He is an advocate for immediate delivery, which is best accomplished, when the head presents, by the application of the forceps; for attempts at turning in cases of head presentation, have in several instances ended in causing the passage of the child into the abdominal cavity. For our own parts, however, we should anticipate greater difficulty in the application of the forceps than M. Duparcque apprehends, and should think it very likely to occasion the recession of the child into the abdomen. The stethoscope will here afford us most valuable information, and enable us to choose between the forceps and the perforator; always, however, remembering, that neither is applicable unless the child is contained almost, or altogether within the uterus. If the child has passed into the abdominal cavity, an attempt should be made to deliver by turning: but if that is found impracticable or very difficult, we should have recourse to gastrotomy; and as an encouragement to its timely performance we may mention, that of thirty-four persons on whom it was performed, twenty-six, according to M. Nevermann, recovered.

The subsequent treatment presents nothing peculiar, and our limits compel us here to take leave of M. Duparcque and his translator, although the remaining chapters on ruptures of the perineum, and on vesico- and recto-vaginal fistula contain much interesting matter. M. Duparcque has done much towards filling a blank in our obstetric literature, and his book contains that which is found in no other work. Still we could have wished for a more logical arrangement of the subject, fewer unnecessary divisions or wearisome repetitions. M. Nevermann's diligence deserves all praise, and renders his book most valuable for reference, but we regret that we cannot say much of the judgment with which he has executed his task. He has added many new cases, but some of them are tedious from their length, others unsatisfactory from their brevity, and not a few have no connexion whatever with the subject. *Perpendenda non enumeranda sunt observationes*, is a remark (of Morgagni), which M. Nevermann would have done well to have borne in mind, and from which M. Duparcque himself might profit.

ART. XI.

Anatomical, Pathological, and Therapeutic Researches on the Yellow Fever of Gibraltar of 1828. By P. C. H. A. LOUIS, Physician to the Hôtel Dieu, &c.; from observations taken by himself and M. Trousseau, as Members of the French Commission at Gibraltar. Translated from the Manuscript by G. C. SHATTUCK, M.D., Member of the Society for Medical Observation at Paris, &c.—Boston, United States, 1839. 8vo, pp. 374.

THESE "Researches" run the risk of being neglected by ordinary readers, as being destitute of the charm of novelty, for they refer to an epidemic which prevailed twelve years ago, and, though at that time drawing upon it the attention of all Europe and of this country more especially, is now almost forgotten but by a few medical *litterati* and officers in the public service. Should it prove, however, (and we feel very

confident it will prove,) that what is pathologically true of the epidemic of Gibraltar is equally true of every epidemic of yellow fever, then should this volume be regarded not as a treatise on a by-gone disease, but as a contribution, and (proceeding from the pen of Louis) an important contribution to our *general* knowledge of one of the most direful scourges of the human family, and one in which this country above all others, the United States scarcely excepted, is most materially interested. Should our supposition prove correct, that the facts observed at Gibraltar are general facts, true of yellow fever wheresoever it prevails, and the intelligent translator of this volume has already produced evidence from Martinique and from Boston (U. S.) confirmatory of this view, it tends materially to obviate an objection frequently urged against the utility of the method of observation inculcated by Louis, the speciality and peculiarity of every individual case of disease setting at defiance all endeavours at generalization, in short, the application of the Baconian philosophy to medicine. That the phenomena of disease are less invariable and fixed than those of inanimate nature, or even than many physiological phenomena, and that the close application of the inductive philosophy to the former class is beset with many difficulties, we willingly acknowledge; but for this very reason would we regard the efforts of M. Louis to surmount these difficulties as worthy of especial praise; and as far as our power extends we shall continue to encourage these and similar efforts, having a conviction that only by their success can medicine become a science, be rescued from the ever-fleeting speculations which have disgraced its annals from the days of Galen to those of Broussais.

M. Louis's estimate of his own work is moderate, for he regards it as a treatise on the Gibraltar epidemic only, not as one on yellow fever generally. This question may ultimately be decided against our author. But however this may be, it is material that the reader should know that the circumstances under which these investigations were pursued were of a nature to secure the authenticity of the facts detailed. A commission was appointed by the French government to investigate the epidemic yellow fever which prevailed in Gibraltar in 1828. This commission, consisting of MM. Gendrin, Trousseau, and Louis, reached the garrison on the 23d of November, thirty-three days before the termination of the epidemic.

"The commission commenced their labours the day after that on which they arrived at Gibraltar; the autopsies were nearly all made in the presence of the three physicians, and M. Trousseau and myself held alternately the pen and the scalpel. The symptoms of the disease were noted by him or by myself, rarely by both of us, and several of our professional brethren assisted us in this part of our labours, of whom I mention particularly Mr. Frazer, surgeon of the Civil Hospital, and Messrs. Gilkrest and Smith, surgeons of the English forces, who kindly consented to be our interpreters. M. Chervin also sometimes acted for us in this capacity. In the midst of universal desolation, our observations were taken with great care. We had time enough, and our professional brethren afforded us every facility for a thorough examination of the bodies, being themselves present at the autopsies; and we, that is, M. Trousseau and myself, were fully aware of the importance of a study of the pathology of the disease, even supposing the necessary information on the origin and mode of propagation of the epidemic to be obtained in the documents collected by the commission. We felt that independently of the task which our government had imposed on

us, we owed it to our profession to study the disease before us, and this, too, more carefully if not more minutely than we should have studied an ordinary malady." (Author's Introduction, p. xviii.)

In the first part of the work we have five cases detailed with so much minuteness as to occupy fifty pages. The object of this seems to be merely to prove that the disease was yellow fever, a matter on which there is not much likelihood of any controversy arising. The second part, one of great interest, contains a description founded on twenty-five autopsies, twenty-three of which are of subjects who died of yellow fever, of the external condition of the body, and the state of the viscera contained in the three great splanchnic cavities, commencing with those which deviated most rarely from their natural state. The proportionate frequency of the lesions and the period at which they were developed are pointed out. The author endeavours to estimate their relative frequency, and draws a comparison between them and what is analogous to them in subjects who die of the acute diseases of Paris. We shall present our readers with a condensed view of this very important part of the work.

Exterior of the body. Externally there was observable great cadaveric, rigidity, and in some the muscular prominences were as well marked as they could have been during life when the muscles were in a state of strong contraction. The skin was yellow in all except three, and when the yellowness was not well marked it was more so on the trunk and head than on the limbs. The muscles had their natural colour, firmness, and cohesion. In one case the superficial muscles of the calves and hams were infiltrated with blood. That the disposition to hemorrhage was not great is shown by the fact that in one only of twenty-three cases was there a slight exhalation of blood in the subcutaneous cellular tissue and in the superficial muscles.

Brain. In the arachnoid cavity, there were in four individuals about five small spoonfuls of serum, bloody in two cases, clear and limpid in other two. The infiltration of the sub-arachnoid tissue was more frequent, existing in two thirds of the cases; it was generally slight. The infiltrated fluid was limpid except in one case where it was at the same time red and abundant. In general the lateral ventricles contained some serum, generally very little. The pia mater was more or less injected in six cases. The colour of the cortical substance of the brain was altered in eight subjects, of a pale or bright red in five, violet or lilac colour in others, a colour which existed in the whole thickness and extent of the cortical substance. This substance presented no other appreciable alteration. The medullary substance had almost constantly its natural appearance, and it was found injected to any remarkable degree in four subjects only. In another it had a lilac shade in some points; in all it was of a good consistence, and there was no softening in any part of it. In the cerebellum, the cortical substance was of a rose colour in three subjects, of a violet-rose in three others; the consistence of the organ appeared generally diminished in one case only.

The spinal marrow and its membranes. There were found from two to four spoonfuls of clear serum in the arachnoid spinal cavity in all the cases where the spinal canal was opened. In one case the serum was more or less red. The spinal marrow itself examined in the same number of cases presented nothing remarkable.

The author in his third chapter treats of the lesions in the respiratory apparatus. The only very general morbid appearance was a livid colour, more or less marked in several cases. The laryngeal mucous membrane was of an intense red in two subjects. The same was true of the trachea in one case, and in another its mucous membrane was both red and softened, consequently inflamed. The author found the mucous membrane of the air passages in a much more natural state in this disease than in those who die of fever in Paris; but he asks the question, What disease of the kind is accompanied by such slight febrile symptoms as yellow fever?

Lungs. These organs were more or less smooth (?) in the greater part of the cases, but entirely natural in three subjects only.

"In five their volume was considerable; and this depended, in great part, sometimes on the dilatation of the pulmonary vesicles, sometimes on different lesions which we are about to describe. There were either black spots of from two to five lines in diameter, or masses of the same colour more or less impermeable to the air, or else they were the first and still more rarely the second degree of pneumonia. The spots were found in nine subjects, sometimes without complication, sometimes with the lesion of which we have just spoken. Usually of a brown black, rarely of a crimson hue, they were more or less concentrated, and occupied a variable space at the exterior or in the interior of the lung, and in some cases they were found only in the lower lobe. The density of the tissue, which was the seat of them, was not manifestly increased except in two cases, this increase of density being the manifest result of an effusion of blood more or less intimately combined with the pulmonary tissue. The blackish masses existed in six individuals; their consistence was greater or less, they contained no air, they had not the granulated aspect of hepaticized lung, they presented but slight traces of organization, so that merely some cellular fibres irregularly disposed might be distinguished in them. Usually they could be easily broken down; in some cases also they yielded by pressure the blood of which they were almost entirely composed, and the pulmonary parenchyma remained apparently of its natural consistence." (pp. 64-6.)

M. Louis ascribes both the spots and masses to an exhalation of blood into the pulmonary parenchyma, and remarks that such are much less frequent in those who die of the acute diseases of Paris than in the victims of the yellow fever of Gibraltar; whilst on the other hand he remarks, the disposition to inflammation of the lungs is much greater in those who succumb to the latter than the former disease. The superior prevalence of effusion of blood into the pulmonary parenchyma in yellow fever should not, he says, excite surprise, considering the disposition to hemorrhage in this disease.

Pleurae. These membranes were remarkable only for the absence of recent lesions of any importance.

Organs of circulation.

The *pericardium* was natural in all those examined, with the exception of one or two spoonfuls of yellowish serum in seven subjects.

With the exception of some deviations from the normal condition as to size, certainly not connected with yellow fever, the changes in the *heart* were in its consistence. It was flabby in seven subjects, and at least as many times its cohesion was diminished. In one case the heart is said to have been flaccid without diminution of its cohesion. In two subjects it contained no blood; a greater or less quantity of it was found in others, either liquid only or liquid and clotted; the clots were black

or yellow, fibrinous. The ventricle and its lining membrane were of a bright colour in three subjects whose hearts were flaccid.

The aorta contained a greater or less quantity of clotted or liquid blood in all the subjects, and its internal surface was rosy or red in six of them, either in its whole length or, as was more commonly the case, in a part only. The redness was not continuous in all these cases. There was a communication of the colour, evidently the result of imbibition, in those who were opened late. The redness of the aorta is more frequent in those who die of acute disease in Paris than in the subjects of yellow fever.

Digestive apparatus.

The *pharynx* and *tonsils* presented nothing remarkable.

The *œsophagus* was devoid of the epidermis, covering its mucous membrane, in six cases; it was partially wanting in nine others, and was perfect in five only. The mucous membrane was blackish or of a deep brown in six cases; red, colour of onion parings, or reddish brown in three others; of a proper thickness and consistence in all. The black colour was found only where the epidermis was wholly or partially destroyed. The author does not regard the destruction of the epidermis of the *œsophagus* as peculiar to yellow fever.

The stomach. There were deviations in the volume of the organ from the ordinary condition, it being above the usual size in seven and below it in three subjects; but these deviations ought not to be considered as the effect of the disease. The *contents* of this organ were not the same in all subjects. Their predominant colour was red more or less inclining to black. The duration of the disease had little appreciable influence on this colour. The red or black matter varied in quantity from four to twenty ounces, and the deeper its colour the more abundant it was. The red and black matter did not differ in consistence. The latter separated on standing into two parts: the one superior, more liquid, of a bister colour; the other inferior, less abundant, and, as it were, formed of blackish particles. It was not mixed with clots of blood; but M. Louis has no doubt of its containing it, for the vessels in which it was kept and bodies plunged in it were stained red. What was the mechanism of its formation? There was no vessel ruptured in the whole tract of the alimentary canal and no lesion of the gastric mucous membrane, so that it must be considered a product of the exhalation of this membrane. The *colour* of the mucous membrane was not the same in all cases, and it varied in the same case in different points of the surface. In one case it was universally red except near the pylorus; in five others through a more or less considerable part of its surface. Instead of a red colour there was an orange or slight rose tint, or a colour of onion parings, in a varying extent, in eight others. In two cases there was a ruddy or bister hue; a greenish or yellowish in two others. The colour of the membrane was natural in three subjects only. These changes of colour were independent of the contents of the stomach; and M. Louis is of opinion that they were not much more frequent than in those who die of the acute diseases of Paris.

The *thickness* of this membrane was natural in half the cases. In other cases it was thickened. Its *consistence* was normal in thirteen cases; in ten the membrane was softened. This softening, M. Louis

thinks, was the result of inflammation in the majority of cases; in seven it was associated with thickening and redness. He remarks that "it is hardly less frequent after other acute diseases, but what makes it more important in this fever is the rapidity with which it took place. The disease was short, and the gastric mucous membrane was not affected in all the cases at the commencement of the fever, or at any rate according to all appearance it was not."

The *mamelonated appearance* was found and usually to a remarkable degree in fifteen subjects. In all the cases this appearance was associated with either thickening or softening, or both these conditions conjoined, and was evidently the product of inflammation. *Ulcerations* of the gastric mucous membrane were found in two cases only, a proportion not exceeding that observed in cases of death from other acute diseases.

The author concludes from these facts, "that the yellow fever of Gibraltar of 1828 is not a gastritis, that the different lesions of the gastric mucous membrane are secondary or accessory, and that in cases where they are found, they were probably developed at a certain period after the commencement of the disease." (p. 99.) He thinks, however, that the disease "had a particular influence on the development of this gastritis, since it was more frequent and came on nearer the commencement of the principal disease, with which, in some cases, it would appear to be confounded, than in any other acute affection." (p. 99.)

Small intestine. As in the case of the contents of the stomach, those of the small intestines were of various appearances. There was in one case a yellowish liquid, a more or less viscous and abundant one in five others; a reddish, brownish, blackish, or even entirely black matter in fifteen subjects, and blood recognizable by all its external characters in another. The author is of opinion that the stomach is the main source of the black matter, and that it passes thence into the intestines; but in some cases he thinks it was the product of exhalation from the mucous membrane of the intestines, since it was found there in two instances, when there was neither red nor black matter in the stomach. The general conclusion is that the presence of the black matter in the small intestine in so great a number of subjects forms an anatomical character, but a secondary one, of the yellow fever of Gibraltar, and distinguishes it from other acute diseases, in the course of which nothing of this kind is observed, or, at any rate, not oftener than twice in a thousand cases.

The *mucous membrane* itself was slightly injected or red in ten cases; it was thickened in one case only; its consistence was natural or nearly so in ten instances; it was slightly diminished in six; and in four others, through a moderate extent of the bowel, its consistence was that of mucus. This softening was certainly in most of the cases not of an inflammatory nature. Except in one case, in which some of Peyer's patches near the cæcum were slightly tumefied, there was no affection of the glands of Brunner and Peyer.

The *contents and condition of the great intestine* bore a considerable relation to those of the small intestine; and M. Louis remarks that excepting the presence of the black matter the lesions found in the large intestines of those who died of yellow fever were the same as those found in individuals dying of other acute diseases, and the only difference is in the relative frequency with which these lesions occur.

The *lymphatic glands* were almost always natural; those of the neck, of the mesentery, and of the biliary organs were the only ones found otherwise. M. Louis brings evidence that the swollen condition of any of these glands was not to be ascribed to inflammation of a corresponding mucous membrane. He refers their condition to the law according to which wherever febrile symptoms, whatever may be their cause, continue during a certain number of days, organs not primarily affected become the seat of alterations more or less important, usually of an inflammatory character.

Liver. The lesion of this organ M. Louis considers as the anatomical character of the disease which is truly diagnostic. It is true that two cases were given to the Commission as examples of yellow fever in which this diagnostic mark was wanting on examination after death. It is clearly shown, however, that these were not cases of the epidemic. This lesion consisted in a discoloration, the liver being sometimes of the colour of fresh butter, sometimes of a straw colour, sometimes of the colour of coffee and milk, sometimes of a yellowish gum colour, or finally an orange or pistachio colour. This discoloration was not the same through the whole extent of the liver; more marked in the left than the right lobe; it was also more uniform. In cases in which the colour was uniform in the left lobe there was a mixture of gum-yellow, orange, or red points, larger or smaller, in the right lobe, or else a rose tint, which did not exist in the left lobe. With this discoloration was associated a marked paleness and a diminished quantity of blood, so that wherever this appearance of the liver was decided, the sections of it were dry and of an arid appearance in the left lobe. This pale and anæmic state of the liver was unaccompanied with softening, indeed in several cases was associated with increased consistence of the organ. Though the author deems it impossible, in the present state of science, to determine the nature of this alteration, he decides, from the circumstances just enumerated and the liver being of a natural size, that it is not of inflammatory origin. He assigns sufficient reasons for the conclusion that this anæmic condition is the effect neither of hemorrhage from the intestinal canal nor of a derivation produced by the inflammation of the mucous membrane of the stomach or duodenum. He considers its commencement contemporaneous with that of the disease, or that it occurs shortly after it. It is remarkable that no other organ is in the same anæmic condition, and that many of them, as the lungs and stomach, contain a larger quantity of blood than usual. This part of the subject is concluded by M. Louis with the remark that the liver was the only organ found constantly altered in cases of death from the fever of Gibraltar; and that this alteration is not found in subjects dying of other diseases, and he consequently regards it as the anatomical character of yellow fever.

There are some anatomical matters of minor importance described in the work; but these we pass over that we may consider more at length the very valuable chapter on the causes of death in this disease. The author acknowledges at the commencement of this chapter the difficulty of the subject, a difficulty depending considerably on the obscurity of the nature of the lesion uniformly observed in the liver, and the consequent impossibility of estimating its share in the fatal event. In eight of the cases the death of the patient remained unexplained by the con-

dition of the organs, and in five others it was *difficult* to explain it in this way. M. Louis makes some excellent remarks on the value of the former fact : he says,

"The fact is valuable on account of the consequences which flow from it. We do not observe the same in anything like such a proportion in the course of other acute diseases. For this reason it is one of the characteristics of the yellow fever, at least of that fever which prevailed in Gibraltar in 1828. And if observation shows that there is in disease something beyond what we see, that its cause has sometimes a great deal to do with the death of those who are attacked with it, this double proposition is more evident here, where we must admit that the cause of death often kills by itself, or independently of appreciable alteration of the organs, and even up to a certain point of apparent derangement of the functions. We must remember that nearly the same thing happens in many cases of poisoning. It results from the facts we are studying, that if an intimate knowledge of the lesions observed in subjects dying of yellow fever is indispensable to the practitioner, he must also remember that in this disease as in others there is something besides these lesions, and that he must profit by all that experience or chance may teach him of the best mode of treatment. The treatment called rational is less sufficient here, inasmuch as the most constant of the lesions, that which forms the anatomical character of the disease, cannot be characterized or appreciated in the present state of science, so that we cannot calculate on treating the disease successfully by any of the established modes or formulas." (pp. 145-6.)

It would unquestionably have been more gratifying had the researches of our author led to conclusions calculated to give at once more decision and success to our treatment of the disease. Such, however, it is evident from the chapter on treatment, of which we shall speedily give a view to the reader, is not now the case ; and, though we are not without a hope that the researches of Louis may at a future day have an important bearing on the therapeutics of yellow fever, at present this disease is left, in common with other epidemics, to such remedies as the observation of outward and visible symptoms or even chance may suggest. We are aware that the immediate barrenness of results from the most laborious pathological investigations discourages medical men, and especially the very practical-minded medical man of this country from such pursuits. We would, however, as far as in us is, guard our professional brethren from such despondency of mind. Patience in investigation is seldom altogether unrequited, and we trust before closing this article to be enabled to show that the facts brought forth by Louis have even now an important application, though not, we admit, to the treatment of the disease. It is obvious, too, that the fact brought to light relative to the liver may ultimately prove to have a more material practical bearing than it at present possesses ; it may be the initiatory but essential step to an acquaintance with the intimate nature of the disease calculated to strip it of many of its terrors.

The description of symptoms, though extremely perfect, is so long, occupying nearly 100 pages, for each individual symptom is the subject of a section, that we feel ourselves compelled to limit our extracts to the general description. In this the symptoms are described as they occurred in fatal cases ; in severe cases which recovered ; and in slight cases which likewise recovered. We shall present them in an abridged form, in the order observed by M. Louis.

Fatal cases. These commenced with an intense headach, accompanied

with chills, shivering, pain in the limbs, and, soon after, pain in the back. A heat, rarely intense, succeeded to the chills, and was sometimes followed by perspiration. At the same time the countenance became red and animated, and in some cases swollen. The eyes were red, glistening, suffused, and patients often complained of a sensation of smarting in them. The thirst was intense, the anorexia complete.

Pain at the epigastrium usually came on in fifteen or twenty hours from the commencement of the disease. It was generally inconsiderable, and very few patients complained of severe or acute pain. With the epigastric pain came nausea and vomiting, excited by drinks and purgatives in several cases, spontaneous in others. The dejections were infrequent, that is, where no laxatives had been administered. The abdomen preserved its form, was supple and not painful to the touch, except in the epigastric region. The sleep was inconsiderable, some patients were restless, and in some there was a good deal of jactation during the night. The smaller number experienced as early as the third day a real anxiety, could not remain in any posture, and in some cases there was delirium; but this symptom did not usually come on till the last day of life, and for this reason is rather to be considered as belonging to the agony than the disease. Otherwise, with few exceptions, there was neither prostration nor stupor. The pulse was moderately accelerated, regular, generally bearing relation to the degree of heat, which was generally slight. The skin of the thorax was injected in some cases. This redness and that of the eyes diminished towards the middle period of the disease or a little later, and new symptoms appeared. To the injection of the integuments of the chest there succeeded a slight yellow tint of that part, and the eyes were of the same colour. When this colour appeared thirty-six or forty-eight hours before death, it became rapidly brighter, so as to be of some intensity at the time of the fatal termination. In other cases where it came on only just before death, it was slight at the autopsy, and commonly limited to the trunk. About this period or a little later the matter vomited, from being of a yellow colour, became brown or black, and the dejections blackish or black. At this period of the disease, the uncomfortable feelings and the anxiety continued during different lengths of time and in different degrees; the strength diminished, the temperature fell, so that the limbs were cold before the agony, and in a certain number of cases there was suppression of urine.

Yellow fever resembles other dangerous febrile diseases in an occasional mildness of external aspect even in fatal cases; the slowness, as M. Louis observes, of the fever and of the pains wherever seated, the absence of agitation and delirium, and the little diminution of strength impressing on the disease a character of mildness calculated to deceive at once the patients, their attendants, and the physician. It was under this form of disease that patients died without taking to their beds, on foot, as it was expressed by their friends.

The severity of the symptoms did not always correspond with that of the lesions: of these last, one was constant, the specific alteration of the liver. The inflammatory state of the mucous membrane of the stomach came next in frequency, and sometimes explained in a manner sufficiently satisfactory the symptoms that had occurred.

Severe cases in patients who recovered. The early symptoms differed

in degree only from those in the fatal cases. In some subjects the stools became black, and in a few, and these mostly children, the brown or black vomit occurred. In a great many cases there was no yellowness, and in the majority of cases where it was found it came on from the fourth to the sixth day of the disease. The extreme restlessness, the jactation which took place in those who died was not met with in any of the cases now under consideration. Towards the fifth day, the symptoms became less severe, the skin cooler, the pulse calm, the epigastric pain diminished or totally disappeared, the thirst was less, the appetite returned, and convalescence commenced.

Mild cases. These began with the usual symptoms very slight in degree. In the progress of the complaint the epigastric pains were rare, and so too were the vomitings, which were almost never spontaneous, and which in no case were of a brownish colour. So slight was the diminution of strength, that the patients either did not keep their beds at all, or were there for half a day only, thus, to use their own expression, going through the disease on foot. In several of these cases the febrile symptoms were very slight, continuing only during twenty-four or thirty-six hours; yet these persons were exempt from any other disease in the course of the epidemic, though exposed to all the causes which could have produced in them the yellow fever, and it was likewise remarked that persons who had been thus slightly affected in the epidemic of 1804 passed uninjured through the epidemics of 1818, 1824, and 1828. This mild form was principally observed in children.

Leaving the estimate of the value of individual symptoms,—though we admit that we do so with regret, for no portion of the work displays M. Louis more favorably as an admirable observer and a truly philosophic physician,—we pass to his account of the mortality of the disease. The discrepancy in the mortality of the endemic derived from two sources is really appalling, being calculated to shake our confidence in all medical testimony. According to calculation made by the Commission, from 600 individuals, short histories of whose cases had been taken, the mortality was in the proportion of one to six and a half, whilst, according to the tables prepared from the bulletins of the public authorities, published daily in the Gibraltar Gazette, giving an account of all the patients of the city and of the hospitals, the mortality was much more considerable, being 1183 out of 5383, or about as one to four and a half. These latter documents, it would appear however, were much less accurate in reality than in appearance; for, though regarding the number of the dead there could be no doubt, as they all passed through the land gate and were counted, there was not the same evidence regarding the number of sick, as many had the fever who concealed it from dread of being sent to the hospital or lazaretto. This seems to us a very probable explanation of the discrepancy, for we have known the same source of inaccuracy affecting returns in epidemics, especially in cholera, in this country, where the same motive for concealment did not exist. The mortality at Gibraltar was found to vary according to age and sex. The ratio is thus stated by the commission from the documents they collected:—of children attacked a seventh part only died, of women, one in five and a half, and of men, one in four and a half. M. Louis remarks that the same symptoms have not the same value for prognosis at all periods of life; thus the black

vomit, which in men was the most certain harbinger of death, took place in a great many children who recovered.

In the third chapter, the question, "Was the disease the same at the commencement, and at the termination of the epidemic?" is considered, and with the same diligence in the collection of particulars and philosophical spirit in deriving inferences from them which are the general characteristics of the work. The author first compares the symptoms observed by the medical officers of Gibraltar during the months of September and October, and those seen by the commission from the 24th of November to the 24th of December, and finds the closest correspondence between them. He gives an example of the pathological lesions found in a case fatal on the 26th of November, and one of the last fatal cases of the epidemic examined on the 25th of December, and here, too, finds the disease preserving its identity. He subsequently shows the proportion of severe to mild cases to have been nearly the same throughout the epidemic: regarding the proportionate mortality in a given number of cases there is a considerable discrepancy between the voluminous documents furnished by the public authorities and the deductions from the comparatively scanty materials collected by the commission. This M. Louis explains by the small number of cases with which the latter body dealt, and the consequently great influence on the *ratio* of a trifling error. It is likewise found, that whilst during the last three months of the epidemic, the proportionate mortality deduced from the tables published, is nearly equal, *that* for the first month, September, is much smaller. This, M. Louis explains by a source of error we have already adverted to, that many more made their illness known to the public authorities at the commencement of the epidemic than during the subsequent months. The author's general conclusion from these particulars is thus expressed:

"If on account of errors in the official documents, and of the small number of facts collected by the commission, it is not possible to draw strictly exact conclusions either from one or from the other, that the mortality of the disease and the proportion of severe to mild cases were the same at different periods of the epidemic, at least these documents, on a careful study, do not contradict that supposition, but, on the contrary, are favorable to it. The uniformity of the symptoms and lesions observed at different periods of the epidemic seems to give an affirmative answer to the question, Were the character and severity of the yellow fever of Gibraltar of 1828, the same at different periods of the epidemic?" (p. 285.)

It will occur to the reader that he has constantly heard of the rise, height, and decline of epidemics. So far as that of Gibraltar was concerned, the argument of the author tends to show that these words can apply only to the prevalence of the disease—the operation of its cause on a varying number of persons, not to its intensity. That in this sense the words had a correct reference to this epidemic is manifest from the official returns, by which we learn that in September 930 persons were ill, of whom 150 died; in October, 3050, of whom 703 died; in November, 1040, with 251 deaths; and in December, 175, with 47 deaths. This uniformity of malignancy has not, up to the present time, been regarded as characteristic of epidemics; on the contrary, they have been considered as varying in the following manner: At the beginning the proportion of persons attacked is small, but the mortality is great; during the increase and

height the number attacked is much greater, but the proportionate mortality is diminished; and during the decline, there is a decrease both of the number attacked and of the fatality.

There is a good chapter on diagnosis. Of course in severe and fatal cases, especially should there be a manifest epidemic, there can be no difficulty. The black vomit, the yellowness of the skin, and the results of autopsies, must render the nature of the disease manifest. In mild cases, however, where there is no declared epidemic, difficulty may arise and the author's directions for surmounting it are of value. He says, in mild cases, all the more or less characteristic symptoms were often wanting. Frequently there were no vomitings of any kind, never black vomit, nor black dejections, nor yellowness, nor anxiety. The disease appeared to consist of some slight febrile symptoms, to which were joined a more or less intense headach, pain in the limbs, back, and loins; sometimes, usually even, redness of the eyes; a weakness so moderate, that many patients did not keep their beds. In cases of this sort, occurring at the commencement of an epidemic, the character of which has not been recognized, and where the patients observed are isolated, it is not only impossible to recognize the disease, but we should scarcely even suspect it. It might be taken for an ephemeral fever, the character of which cannot always be determined, or in cases where the febrile symptoms are accompanied by epigastric pain and nausea, the disease might be considered a slight gastritis; and although, according to observation, the return of strength does not take place in yellow-fever patients after a space of time proportioned to the symptoms and duration of the fever, still so many causes may retard convalescence from the most common diseases, that yellow fever could not be suspected from this consideration alone. But if many similar cases were observed in a short space of time, in the months of August and September, and in the latitude where the yellow fever prevails; if the eyes were injected from the commencement, the countenance red, the headach intense, the epigastrium sensible on pressure, we should strongly suspect this disease, although the existence of an epidemic has not been declared. There would be no doubt as to this point, even if the symptoms existed in the slightest degree only, where the disease attacked all the members, or the greater part of the members of one family, and in a short space of time; since, of diseases of this kind there is no other than yellow fever, which would attack a great number of persons of the same family in so short a space of time.

The very important question: "Does a first attack of yellow fever preserve from a second?"—a question with which another is very directly connected, that of the contagion of this disease, is discussed at considerable length. A commission of thirteen medical men, British, French, and Spanish, was appointed for its examination, and of this commission M. Louis was president.

The question was examined under a double point of view: 1st. If an individual who had had the yellow fever in Europe was susceptible of a second attack of the same disease in Europe. 2d. If one who had had the disease in Europe, could have it a second time in America, and *vice versa*. Our space does not permit us to describe the precautions taken by the commission to avoid every supposable source of error, or the very accurate detail of circumstances and calculation from which it de-

duced its conclusion. This conclusion is, that *second attacks are more rare in the case of yellow fever than of smallpox itself*, that an individual once attacked, even in the slightest degree, is, with very rare exceptions, exempt for ever from future attacks; and this is true, not only where the first attack and second exposure have taken place both in Europe, but where the attack and exposure have been in different continents. M. Louis answers in the valuable corollaries deduced by Dr. Pym from his investigation of the same subject with the same result: 1st. That the persons who have already had yellow fever may remain without risk in a town where it is prevailing epidemically, as did the inhabitants of Gibraltar, and that the care of the sick should, as much as possible, be intrusted to those who have already experienced an attack. To these the commission have added the important conclusion, that the same fact ought to have a great influence in the selection of troops for colonies where yellow fever prevails habitually.

We regard these conclusions respecting the immunity of patients previously affected with yellow fever, as of the highest pathological as well as practical interest: they derive an increase of importance from the analogous conclusions arrived at in regard to the typhus fever of this country, by some of our best recent authorities in Scotland and Ireland.

Two orders of facts, of an entirely different nature, are compared in the chapter on treatment. The practice adopted by the medical staff of the army has no resemblance to that of the private practitioners of Gibraltar. The former employed at the commencement of the epidemic large and repeated general bleedings; but they soon modified this practice, employing subsequently general bleedings only as an auxiliary to purgatives and large doses of calomel; these latter remedies, and, with some practitioners, mercurial frictions, constituting the staple of the treatment. The mortality resulting from the disease under this plan, was one in four and a half. The Spanish physicians, on the other hand, employed bleeding very moderately, and only at the commencement of the disease, moved the bowels by very gentle laxatives, or, in the advanced stage of enemata only, and gave mercury only in a few very severe cases. The mortality under this plan was only one in six, a proportion which led the population of Gibraltar to consider the Spanish physicians as much more successful than the British. But this difference was only apparent, for when we reflect that the mortality among women and children was much less considerable than among men, and when we deduct the number of these last from the general sum, we find the mortality among the civil, male and adult, population, the same as among soldiers, one in four and a half.

In the absence of any plan of cure, of which the value is confirmed by experience, M. Louis suggests that which appears to him to be pointed out by the symptoms as a basis. General bloodletting should be resorted to at the commencement of the disease, and the quantity of blood drawn should be in proportion to the febrile symptoms. He suggests fifteen or sixteen ounces as a suitable amount of blood, and such a bleeding might be repeated within the first twenty-four hours where the patient is very strong and the fever intense.

The effects of the bloodletting should be seconded by the use of cool and slightly acid drinks, such as lemonade, orangeade, or a solution of gum-syrup, if the stomach bears that better than any other kind of

drink; and, if possible, the patient should consume from two to three pints, or even more in the course of the twenty-four hours, provided so much liquid does not excite vomiting. The intestinal canal should be evacuated by means of mild enemata, repeated two or three times in the course of twenty-four hours; and emollient fomentations should be applied to the epigastrium.

In reply to his own question, "If the vomitings should suddenly become very frequent, or the epigastric pain very severe, a general blood-letting having been made, would an application of leeches to the epigastric region be advisable?" The author suggests that recourse to such means should depend on the febrile symptoms. Where these are diminished he would abstain from such means: where, however, they are unabated or slightly increased and the patient is strong, he thinks we should be justified in taking eight or ten ounces more of blood from a vein, or in the application of twenty leeches to the epigastrium. He considers the means to be employed for checking hemorrhage, and especially gastro-intestinal hemorrhage; and remarking that such hemorrhage was not less frequent when physicians bled largely, than when they had nearly abandoned bleeding, he does not regard it as a means of preventing such hemorrhage; and finds in the smallness of the pulse, and diminution of temperature, an additional reason for abstaining from it. He recommends that something astringent should be employed, and suggests the intestines as the most suitable organs for its application. We presume he means that the astringent should be used in the form of enemata.

The lesion of the liver does not escape his attention; but being ignorant of the therapeutic agent calculated to combat it, he is obliged to leave to time, chance, and the acuteness of future observers, the discovery of its remedy, experience having proved that no reliance is to be placed on mercurial preparations of any sort.

He disapproves of ether and other energetic antispasmodics, on account of the inflammatory condition of the stomach; but thinks a trial might be made of opiate preparations, which are better adapted to the state of the stomach, and the free employment of which is permitted by the condition of the cerebral organs.

In mild cases, where the febrile symptoms are inconsiderable and the headach moderate, cool drinks and emollient enemata appear to be the only remedies which it is advisable to employ.

We have confined ourselves to describing the remedies suggested by the author, without detailing his reasons for their adoption. All these are founded, partly on the symptoms, but especially on the results of the autopsies, which we have detailed at considerable length. This method of cure deserves the credit of being very *rational*; but we should have felt more confidence in it, and so, too, we are sure, would M. Louis, had it been empirical, and had its author been able to state that by means of it, he had reduced the mortality from one in four and a half to some smaller ratio. We fear there are many *opprobria medicorum*, but of all these, epidemics are the most opprobrious. They seem to go very much their own way in spite of the doctor.

In his concluding chapter, M. Louis examines the question: "Is yellow fever ever sporadic at Gibraltar?" and after a careful analysis of forty-five cases, nineteen of which were fatal, and twenty-six of which recovered, and which occurred at various periods when no epidemic was pre-

vailing, he answers this question in the affirmative. Our limits do not permit us to accompany the author in his analysis of these cases, but we think it amply sufficient to establish the affirmative of the question. In concluding this subject and his volume, he says,

"This conclusion (that yellow fever sometimes exists sporadically at Gibraltar) being admitted as correct, the question of the mode in which yellow fever is communicated would not be settled, its non-contagiousness would not follow. For we see every day the most incontestably contagious diseases, as, for example, the smallpox, under sporadic forms, and appearing only at distant intervals of time. All, then, that we can conclude, the existence of sporadic cases of yellow fever being admitted, is, that this fever may be developed at Gibraltar, independently of anything coming from America. To conclude absolutely that the yellow fever is not contagious, would be to go beyond our facts, and if this conclusion be the expression of the truth, it can result only from another class of facts." (p. 374.)

We take leave of this volume, but not finally, we trust, of its author, with our previously high opinion of his powers as an observer and a reasoner, exalted by its perusal. The fruit of his labours on yellow fever is certainly rather in prospect than possession; but he has given a precision to the whole subject, of which it was previously destitute, and this is the only mode by which we can be invested with a power over the disease, of which we are at present unhappily destitute. The language of the translation is very creditable to Dr. Shattuck; and we earnestly recommend his book to the attention of all our readers who are resident in, or likely to be called to visit the haunts of the fever of which it treats.

ART. XII.

Illustrations of the Comparative Anatomy of the Nervous System.
By JOSEPH SWAN.—London, 1839. Part V. 4to, pp. 107 to 195.

IN noticing this fifth number of Mr. Swan's "*Illustrations*," we cannot do less than repeat the very favorable opinion we have before given of the general character of the work, as that of a most skilful anatomist. When completed it will justly be entitled to a place in every library, beside that of its great predecessor by the same author, *The Nerves of the Human Body*.

The present number contains only two plates; but these are in illustration of that part of anatomy in the higher mammalia upon which Mr. Swan's great excellence as an anatomist of the nervous system has been established—the nerves of the viscera. We have on the whole derived more satisfaction from the perusal of this than of the preceding numbers, since it contains a comprehensive description of the vagus and sympathetic nerves in a large number of mammalia, with details of the peculiarities of these in different species, all of which are highly valuable, and will assist to rectify many of the contradictory statements of physiologists, who have experimented on animals with a view to determine the functions of these nerves, and their peculiar influences on different organs. From the details now given by Mr. Swan, it will be seen that there are good reasons for believing that many of the contradictory statements above alluded to, have arisen from the experimenters having often mistaken the nerves upon which they have operated; or perhaps have ignorantly included others in their trials; or even, perhaps, have entirely missed their object, through want of correct knowledge of the anatomy

of the parts implicated in their experiments. We have ourselves witnessed instances of some of these things having occurred even in the performances of those who have gained some notoriety for experimenting, and have heard, with much amusement, the ingenious explanations which have been given to such experiments, when the results have differed greatly from those previously predicted by the operator. We have not the slightest doubt that instances of this kind have frequently occurred, and have been the source of much error in the statements of those who are desirous of obtaining a reputation for experimenting, without sufficient preliminary knowledge to render them fitted for so responsible a task. We cannot too strongly condemn such a mode of proceeding; and we would therefore strongly recommend to those who are ambitious of becoming, not mere experimenters, but promulgators of truth, first of all to fit themselves by carefully studying, not generally but minutely, the structure of the parts upon which they are about to operate. More striking instances of the necessity for minute examinations can scarcely be pointed out, than those of the peculiarities in the relations, which are shown by Mr. Swan in the Part now before us to exist between the *vagus* and *sympathetic* nerves, in different mammalia. Thus, in the rabbit and hedgehog, which are often the victims of experiments, the prolongation of the *sympathetic*, which descends from the superior cervical ganglion, passes down the neck to the second cervical, distinctly separated from the trunk of the *vagus*; but in the pig, according to Mr. Swan, these nerves are slightly connected together laterally, just before the trunk of the *sympathetic* reaches the second ganglion; but in other instances, among which are the ass and calf, often also the subjects of experiment, the prolongations of the *sympathetic* and *vagus* nerves are closely attached to each other, and proceed through the neck as one nerve. The description given by Mr. Swan is as follows:

"In many animals, as the jaguar, dog, fox, ass, calf, and goat, the prolongation through the neck is attached to the trunk of the *par vagum*, and in the calf has sometimes very small ganglia imbedded in it, which give filaments to accompany small arteries; it leaves the trunk of the *par vagum* sooner or later at the bottom of the neck to form the inferior cervical ganglion, and become connected with the first thoracic." (p. 113.)

We were particularly interested some years since with this peculiarity in the distribution of the *vagus* and *sympathetic* nerves, when examining them in the calf, as admirably illustrating the necessity of carefully examining every structure experimented on, in every instance, before attempting to draw conclusions from the results of our operations; and now, in further confirmation of the necessity for this, we need but refer again to the statements of Mr. Swan, from which it appears that in three varieties of the same species of animal, the common dog, he has found the superior cervical ganglion varying both in size and shape, while in another tribe of animals, the quadrumana, the sphenopalatine ganglion, a part of the *sympathetic* so distinct in man, is almost or entirely absent. In our own dissection of the pig we have found the prolongation of the *sympathetic* attached to the trunk of the *vagus* throughout nearly the whole of its course through the neck, from the first to the second cervical ganglion, just as we have seen it and as it is described by Mr. Swan in the calf. Mr. Swan, however, found it attached to the trunk of the

vagus only for a very short distance just before it joins the second ganglion. These variations in the same kind of animal still further show that it is unsafe to draw any conclusion from the results of experiments which are not supported by anatomical evidence derived from actual observation. The description given by Mr. Swan of the connexions of the nerves from the superior cervical ganglion with the branches of the fifth, glosso-pharyngeal, seventh, and ninth, is in perfect accordance with our own examinations of these parts in the pig; and the precise account he has given of the sympathetic and trunk of the vagus, and their relations in the ass, the jaguar, dog, and fox, is so worthy of attention that we cannot forbear quoting it at length.

"In the ass, the sympathetic passes from the trunk of the par vagum nearly as in the calf, but the right inferior cervical ganglion is rather larger, and the left extends to the first thoracic; distinct communications exist between branches from the first thoracic ganglion, the phrenic nerve, and the trunk of the par vagum; the inferior cervical and first thoracic ganglia communicate very much with the recurrent nerves and some branches of each trunk of the par vagum, so as to form a plexus, from which branches proceed to the heart, those of the right side prevailing for the left ventricle, and those of the left for the right; others joined by branches from the trunk of the par vagum and given to the right auricles. In the jaguar, the sympathetic on leaving the trunk of the par vagum passes to the inferior cervical ganglion, which on the right side forms a small ganglion and a still smaller one on the left; these send off branches to encircle the subclavian artery and join the first thoracic ganglion, and give off cardiac branches, which, together with others from the first thoracic ganglion and the trunk of the par vagum on each side, form communications with the recurrent nerves; the branches then pass principally to the ventricles; other branches from the trunk of the par vagum and recurrent, which have communicated with some of those given to the ventricles, pass to the auricles, but some of these are also extended to the ventricles. Branches from the first thoracic ganglion join the par vagum, the recurrent, and phrenic nerves. In the dog and fox the inferior cervical ganglion is intimately connected with the trunk of the par vagum; it is placed at the inner side of the first thoracic, the short prolongation passing from one to the other over and under the subclavian artery, it sends off branches to join others from each trunk of the par vagum and the recurrent for supplying the heart; in the fox it appears almost as if a large branch issued from the first thoracic ganglion to join the trunk of the par vagum, and for many of the cardiac nerves to pass off after this junction. In the dog communications between each inferior cervical ganglion and phrenic nerve can be traced." (pp. 113-4.)

From the above description it will be seen that while experiments may be made on the trunk of the vagus in the rabbit and hedgehog, without injuring the sympathetic, it is scarcely possible to make similar ones in the ass and calf, and still less practicable in the dog and fox, without also including the latter nerve, and consequently complicating the experiments, and rendering the conclusions drawn from them less certain.

Mr. Swan has also noticed other interesting facts connected with the distribution of the sympathetic. Thus he traced branches from the superior mesenteric plexus to several parts of the large mesenteric glands in the jaguar, and found prolongations of the sympathetic from the renal, spermatic, and aortic plexuses forming points of union towards the bottom of the sacrum, but coalescing on the caudal artery, along which the "nerves are continued for supplying the coats of this vessel; in the calf each prolongation terminates on this vessel in the single ganglion, from

which a prolongation is continued ; in the jaguar each prolongation was traced into the tail, to be ultimately distributed on this artery." (p. 117.) He remarks also on some interesting peculiarities in the human fœtus. Thus in a fœtus of five months the superior cervical ganglion was large, and the conjunction of its branches with the vagus and ninth nerves had a gangliform appearance. In the same fœtus he observed that the spinal marrow was nearly perfect, and reached to the bottom of the sacrum, and that the spinal ganglia were large and well formed ; and what is still more interesting, that in a fœtus of four months there was a ganglion at the superior part of the par vagum. This latter fact is particularly worthy of notice, from the circumstance that, as is well known, in the human adult only a very slight enlargement exists on the vagus, just after it has passed out of the cranium, the ganglion which is thus found to exist in the fœtus having almost entirely disappeared. We agree with Mr. Swan that it would be highly interesting to trace the changes that take place in the development of the sympathetic system in the young of different animals. Another valuable fact also noticed by Mr. Swan is that "in the calf . . . the branches of the sympathetic can be traced close to the anterior and posterior bundles of the spinal nerves with which they coalesce, but cannot be followed to the spinal marrow without violently severing communicating filaments." (p. 120.)

With these valuable facts before us we need scarcely again express our approbation of the anatomical part of Mr. Swan's work, yet we cannot restrain a wish, which we felt strongly when reviewing a former number of this work, that Mr. Swan would be content to confine himself to elucidating the peculiarities of the anatomy of the nervous system, on which his remarks, as being derived from careful and probably often-repeated dissections, have given his statements a degree of authority of which any man might well be proud—instead of attempting to theorize on the uses of the parts, which he is so much prone to do, and in doing which he almost invariably fails. Whenever he departs from the observation of facts his conclusions are almost always hypothetical and erroneous assumptions, totally unworthy of his reputation as a great anatomist. We will select a few instances of these errors from the present Part, in illustration of the justness of our strictures. Take the following :

"Many secretions are offensive to the skin, which has not the protection of mucus, but some things hardly affect it which irritate excessively the intestines. But it is *most probable* that the nearer the nerves of the intestines approach to those of the skin the less uneasy impression any coarse or acrid food will produce, and consequently a less speedy evacuation. The *open texture* of ganglia in the herbivorous feeders of mammalia, and in both herbivorous and carnivorous feeders of amphibia, although it be easily irritated, may have a longer retention of food than *fleshy* ganglia would have done." (p. 125.)

Again, in pursuing this hypothesis, he says,

"Through the fleshy or thready state of the ganglia of the spinal or sympathetic nerves, it may be presumed that the parts supplied by or communicating with them are made more or less subservient to each other, according to the required condition of every animal. It is *most probable* that the coarser and more irritating the food, the nearer the splanchnic nerves, the semilunar ganglia, and plexuses approach to the thready texture or that of the spinal nerves in mammalia ; and this state of the ganglia is found in the animals which have the food transmitted through the intestines the most quickly." (pp. 125-6.)

This favorite hypothesis respecting the thready state of the ganglia he winds up with the following unique addition to his theory.

"As the thready disposition of the ganglia exists both in the *pig* and *boa constrictor*, as well as in the *turtle*, it is not unfavorable to the formation and accumulation of fat." (p. 126.)

These are assumptions at which we cannot forbear smiling, and the gratuitous nature of which we are quite certain will fully justify any severity of criticism on our part; but we will give a few more instances of these hypothetical remarks out of the many others with which the present number of Mr. Swan's work abounds.

"It is probable that in all animals the more nutritious the food the less it irritates the nerves, and the longer it is in passing through the small intestines; so that even the same articles, if cooked, may have their nutrient parts absorbed in these, but, if raw, will have a much more considerable portion remaining to be extracted in the large; so that the capacity either of the small or large intestines will be very much influenced, not only by the food itself, but its mode of supply, and the animals thus rendered more or less capable of making particular exertions." (p. 127.)

Besides this we are gravely told, on the same page, that "the peculiarity of the milk results from the nature of each animal, and is to a certain degree required in the young on account of the particular state of the sympathetic nerve." It is indeed much to be lamented that Mr. Swan should be so much inclined to theorize, and while stating so valuable an anatomical fact as that contained in our next quotation, that he should mar the interest attached to it by appending, in the very next sentence, an explanation which we can hardly otherwise designate than as absurd.

"The duodenum, the small intestines, and the cæcum, and a more or less extensive portion of the upper part of the colon, are furnished by the superior mesenteric plexus, which has a considerable admixture of branches from the par vagum; in man, the baboon, jaguar, dog, fox, calf, ass, and pig, the remaining portion of the large intestines, as far as the rectum, is supplied by the sympathetic. In man and the baboon the descending portion of the colon has an extraordinary quantity of nerves from the aortic and hypogastric plexuses, in all probability both for endowing it with higher powers for preserving it from the acrimony of, and for expediting the expulsion of, the feculent matter." (p. 131.)

These assumptions, in proof of which we have not a single pathological or physiological fact, appear to have been printed merely because they happened to be in the imaginings of the author, since we cannot discover that he has any general views or principles to which they may be subsidiary. Such inconsiderate intrusions of mere surmises like these into anatomical works have done much harm to the progress of science; and have tended to render our knowledge unstable. While noticing the defects of this work, and before again turning to those parts of it on which we can offer nothing but praise, we may briefly remark that we could have wished the descriptions and observations had been written with a little more attention to literary accuracy; since in many sentences the style is so confused and incorrect that we are not quite sure that we have always rightly understood the meaning of the author.

In returning to the more agreeable part of our duty, that of pointing out what appears more especially deserving of notice, we are particu-

larly interested with the description of the connexion that is shown to exist between the nerves of the uterus and mammæ, in the ass. Mr. Swan says that

"From the third lumbar ganglion of the sympathetic a large branch passes to the aortic plexus, and from this the internal spermatic nerve is given off and distributed to the Fallopian tubes, the ovary, and uterus, and the round ligaments. From the same part of the aortic plexus the hypogastric is given off, which in passing down sends filaments to the uterus and the remains of the umbilical artery, and its surrounding membranæ; it is most probable that similar nerves accompany these arteries and the umbilical cord in the fœtus; it then forms an intimate plexus, with branches from the fourth, fifth, and sixth sacral nerves, to be distributed on the bladder, vagina, and rectum. The third lumbar ganglion of the sympathetic also sends a large branch to join the external spermatic nerve, a great part of which is distributed on the mamma. The close connexion between this organ and the uterus, with its appendages, is thus clearly demonstrated; and although it cannot be shown in the human body or in many animals, it is in the highest degree probable that a similar participation of function is effected through the sympathetic nerve." (p. 132.)

The ascertainment of this connexion between the nerves of the uterus and mammæ, even in one animal, is an interesting fact. He has been unable, however, to demonstrate a distinct connexion between the mammary and uterine nerves from the sympathetic system in some other quadrupeds, as in the sow, in which the mammæ are numerous, and distributed along the whole of the pectoral and abdominal surface of the body. In that animal he found the nerves that supply the mammæ derived from the intercostal and other spinal nerves, and hence he concludes that the mammæ are supplied with branches from the sympathetic system through means of the branches that accompany the arteries, and also those which are bound up in the sheaths of the spinal nerves, which, as is well known, are directly connected with the sympathetic system at their origin.

There is another anatomical fact pointed out by Mr. Swan which we regard as of equal interest with that we have just noticed; it is the continuation of the posterior branches of the vagus nerve into, and their becoming united with, the great mesenteric plexus, as shown on the same plate, (xxvii., fig. 1, 9,) on which the connexion of the mammary and uterine nerves is demonstrated. This is in accordance with what has been ascertained by Weber and Müller of the distribution of this nerve in some of the lower vertebrata: the first of whom found the vagus distributed to a great part of the alimentary canal in the snakes, while the latter states that in the myxinoid fishes the vagus extends as far as the anus; and we doubt not that such would be found to be the case in the higher vertebrata, if the connexions which Mr. Swan has shown it to form with the mesenteric plexus could be traced through the intricate combination of its fibres to their termination.

The remaining portion of the present part is devoted to some general descriptions of the cerebral and respiratory nerves, and of the structure of the brain and spinal cord, in mammalia; but on these subjects we have not remarked anything which has appeared to us particularly worthy of notice. The extracts we have given will sufficiently indicate our opinion of the value of this work, which, indeed, as an anatomical one can scarcely be too much commended.

ART. XIII.

A Treatise on the Physiological and Moral Management of Infancy.

By ANDREW COMBE, M.D., &c. &c.—Edinburgh, 1840. 8vo, pp. 375.

WE have already recorded our favorable opinion of Dr. Combe's work; and a second and more careful perusal of it amply confirms the impression that the first and necessarily hasty glance we could give it left upon our minds. It is one of the very few books which, addressed principally to parents for their instruction, may be read by medical students and even medical practitioners with great advantage and pleasure. It is true that Dr. Combe does not arrest the attention of his reader by any novel facts. He has drawn freely from various sources for the purpose of rendering his treatise complete, and most admirably and judiciously has he employed the materials he has selected. The style in which the work is written is highly attractive; it is perspicuous and convincing. Every point he urges and every doctrine he inculcates is supported by a reference to well-established physiological facts and to indisputable statistical records. It may be thought, perhaps, by many that in the present day such a work was not required, and it is true, as Dr. Combe admits in his preface, that many excellent treatises on the management of infancy already exist. But most of those hitherto published touch very briefly upon the general management of early childhood, merely as preliminary to a description of its diseases; and their perusal by non-professional readers not unfrequently leads to dangerous tampering with the lives of the young. They are in fact fit guides for medical readers only. Those again, which, as intended for the use of mothers, are free from this objection, lose much of their value and utility from presenting their rules and admonitions as so many abstract and individual opinions, and omitting to connect them with the physiological laws or principles on which they are based, and according to which their effects are produced. Dr. Combe, sensible of these imperfections as detracting from the usefulness as guides for the non-professional reader, and we may add for medical students of many works in other respects of great merit, presents us with the present able treatise on a more comprehensive plan; it avoids on the one hand all descriptions of disease, and on the other founds its precepts on well-ascertained physiological principles. It has been his constant endeavour to allow as little as possible to rest on mere opinion, but to show a foundation for every rule, precept, and injunction in the laws of the human constitution, and consequently in the will of the Creator. "It is then in the habitual application of principle to the inculcation and advancement of knowledge more than in any absolute novelty of detail," that the author hopes the present volume will not be found unworthy of notice. We feel confident that every candid and intelligent reader will determine with us, after a perusal of this little work, that the author's hopes must be fully realized. The chief aim, then, of Dr. Combe in preparing the present treatise is to present the reader with a more comprehensive and systematic view than we usually meet with, of the *principles* by which infant management ought to be directed. It follows, as a necessary consequence, that if these be rightly understood, not only will the details of rules and of general advice be attended to with greater punctuality, but the rules them-

selves will be fulfilled with more intelligence and with a deeper sense of the responsibility involved in their neglect. It is well known that an immense improvement in the treatment of the young has taken place within the last fifty years, and that as a consequence the rate of mortality in infancy has been greatly reduced. But who will deny that it is equally true that this mortality, although much smaller than formerly, still continues so excessive in amount, as to demonstrate the necessity of still further improvements? "And the more we consider the past the more evident will it appear, that the chief obstacle to our progress arises from trusting too much to random observation, and neglecting the aid and guidance of principle, by which alone observation can be profitably directed and brought to yield its full harvest of results." It is very fairly urged by Dr. Combe that among the numerous works now in the hands of the profession and of mothers, there is not one which attempts systematically to base its rules of conduct on the laws of the infant constitution. And yet it is so plain and natural that every living being should be treated according to its own nature, that we should look with amazement on any one who, on receiving the charge of a new and valuable plant or animal, should proceed to treat it according to his own notions of what is right for plants in general, without first using every means to discover its individual properties and proper mode of management from persons already acquainted with them, and verifying the opinions of such persons by observation of its habits and structure. In practice, this philosophical and even rational mode of proceeding is too often neglected. Instead of invariably consulting nature as the highest authority, we too frequently neglect her dictates altogether, and prefer, or at least carelessly take the mere opinion of the first adviser we meet.

"If we could once bring ourselves to believe that in man, as well as in other animals, adaptation to the laws of the original constitution is the proper standard by which to regulate our treatment of the young, we should derive as much advantage from adhering to it in his instance as we do in that of horses. We acknowledge that the dray and the race horse are different in constitution, and by treating each according to its own nature, we succeed in adapting both to their true purposes. Let us follow the same method with the offspring of man, and similar success will assuredly reward our pains. Such, accordingly, shall be my aim in the following pages, so far as the extent of our knowledge will permit; and where I shall fall short in attaining it, I shall at least have the satisfaction of having done my best to facilitate and render more profitable the exertions of others." (p. 6.)

Thus far for the preliminary observations with which Dr. Combe introduces us to the discussion of many and all of them very important topics connected with the physiological and moral management of infancy. In the abstract and analysis which we now proceed to give of the work, we shall purposely pass over those precepts and instructions which are intended solely for mothers, and confine our notice to those points which we think the medical reader will find neither trite nor unprofitable. And first of the extent of mortality in infancy.

It is a well-known fact that between a third and a half of all the children born die within the first five years of their lives. The presumption naturally arises that some great errors must be committed to entail such a frightful result. And surely this presumption is strengthened when we find no similar fatality among the young of those animals whose struc-

ture most nearly resembles that of man, and which are guided in the treatment of their offspring by an unerring instinct which ensures their safety. If, strongly argues Dr. Combe, it were only in wild and barbarous regions that this extraordinary mortality occurred it might seem quite in accordance with the hardships by which even infancy is there surrounded: but the startling circumstance is that it happens in the midst of comfort and civilization, where knowledge and the means of protection are supposed most to abound. As the first efficient step towards preventing or providing a remedy for an evil is to obtain a clear idea of its existence and nature, Dr. Combe refers to the latest statistical records, both foreign and domestic, in proof of the lamentable average mortality of infants which we have just mentioned. Having given unquestionable evidence of the fact, he asks

“Whether this mortality constitutes a necessary part of the arrangements of Divine Providence which man can do nothing to modify; or, on the contrary, proceeds chiefly from secondary causes purposely left, to a considerable extent, under our own control, and which we may partially obviate or render innocuous by making ourselves acquainted with the nature of the infant constitution, and carefully adapting our conduct to the laws or conditions under which its different functions are intended to act?” (p. 11.)

Various considerations are entered into to enable the reader to answer the question for himself. If it can be shown that the preservation or destruction of life in infancy is not of invariable extent, but bears a marked and direct relation to the nature of the treatment and external influences to which the young being is subjected the question will be solved. If the infant mortality be the result of an unalterable dispensation of Providence without respect to good or bad management, we may expect to find it nearly the same in all ages and states of civilization, and bearing no relation whatever to the conduct of others. But if it be chiefly owing to secondary causes, many of which it is in our power to guard against, it will vary in amount, and in direct relation to the favorable or unfavorable circumstances in which the child is placed and the good or bad treatment to which it is subjected. That nothing may be left to uncertainty or conjecture Dr. Combe first contemplates the extent to which in past times infant life *has fallen* a sacrifice to ignorance and bad treatment; and then contrasts it with the comparatively excellent results of a mode of management of a more enlightened though still far from perfect kind.

So directly is infant life influenced by good or bad management that about a century ago the workhouses of London presented the astounding result of twenty-three deaths in every twenty-four infants under the age of one year. For a long time this frightful devastation was thought to be beyond the reach of human remedy. But an improved system was at length adopted, and the proportion of deaths was speedily reduced from 2600 to 450 a year. Other equally striking proofs are advanced of the destruction of infants by bad management, and their comparative preservation by better treatment. From extensive records upon a large scale, and through a long series of years, the most convincing evidence is afforded that it really is in the power of man to prevent and mitigate infant suffering by the enlightened exercise of reason. The grand principle, then, which both parents and medical men ought to have before

their eyes, is that human life was not intended to be extinguished at its very dawn, and that when it is so extinguished it is generally from the operation of previously existing causes, some of which might have been discovered and removed, while others might at least have been partially subdued.

Sources of Disease in Infancy. All the causes of disease operate by infringing the conditions of health of some organ or organs of the body; and if it were possible to discover the whole of these conditions as affecting all the organs, and we could fulfil them scrupulously, we might thereby ward off disease altogether and ensure the continuance of life till the natural term of existence. "The grand aim, consequently, in attempting to improve the treatment of infancy, ought to be the discovery and fulfilment of the conditions on which the healthy action of the principal organs and functions depend." In general the various causes by which health is undermined in infancy will be found to resolve themselves into two distinct classes: those which have reference to the state of the parent before the birth of the child, and those which act directly upon the latter after the commencement of its independent existence.

"On looking abroad upon society, we perceive some families apparently surrounded by every external advantage, yet in which it is found difficult to rear any of the children to maturity. Either from scrofula, consumption, or some other form of bad health, one after another is carried off; and those who survive are characterized by great delicacy of constitution, and require the most assiduous care for their preservation. As a contrast to this, we meet with other families seemingly much less fortunate in their outward circumstances, but in which one child grows up after another as if no such thing as disease existed; or as if the ordinary disorders of infancy were merely mysterious processes for the farther development of the bodily organization. That such remarkable differences exist must have been observed by all who notice what is passing around them; and granting them to exist, the very important question occurs, On what do they depend?" (pp. 56-7.)

The very terms of this statement imply that the unusual susceptibility of disease in the one case and the immunity from it in the other arise from no peculiarity of treatment or external situation, and must therefore depend on some inherent difference of constitution derived from one or both of the parents. So manifest is the influence of hereditary constitution upon the organization and qualities of the offspring that from the earliest ages the attention of mankind has been directed to its observation. The reality of hereditary influence being admitted, the next point of practical importance is to discover what are the conditions in the parents which affect most powerfully the future welfare of the child. They are principally,

"1st. Natural infirmities of constitution derived from their own parents. 2dly. Premature marriages, especially of delicate females, and persons strongly predisposed to hereditary disease. 3dly. Marriages between parties too nearly allied in blood, particularly where either of them is descended from an unhealthy race. 4thly. Great disproportion in age between the parents. 5thly. The state of the parents at the time of conception; and, lastly, The state of health and conduct of the mother during pregnancy." (p. 58.)

Having first adverted to many well-known facts proving the influence of the constitution of the parents on the qualities and health of the progeny, Dr. Combe offers several remarks which are well worthy the atten-

tion of medical practitioners. Those who desire bodily and mental soundness in their offspring ought to avoid intermarrying with individuals who are either feeble in constitution or strongly predisposed to any serious disease: as insanity, scrofula, cancer, or consumption; and above all the greatest care should be taken against the union of the same morbid predisposition in both father and mother. If any peculiarity of constitution is confined to one parent, and is not very strong, it may be kept in abeyance by a judicious marriage; but if its influence is aggravated by being common to both parents the children rarely escape. It is not meant that the actual disease which afflicted the parent will certainly reappear in every one of the children, but only that the children of such parents will be much more liable to its invasion than those belonging to a healthier stock, and consequently will require unusual care and good management to protect them against it. One of the chief advantages, indeed, of being aware of the nature and extent of the influence is the power which it gives us of diminishing its operation by a system of treatment calculated to strengthen the weaker points of the constitution. Suppose, for example, a child inherits a scrofulous habit from both its parents, and is brought up under the same circumstances which induced the disease in them, in all probability it will fall a victim to some form or other of scrofulous affection. But exercise timely precaution; transfer the child for a few years to a drier and warmer climate, put it on a proper regimen, and keep it much in the open air, carefully avoiding a damp and unwholesome atmosphere, it may altogether escape the disease, and enjoy better health than its parents.

"A precisely similar result will follow in other cases of family predisposition. The excitable and capricious children of parents who have been insane or are strongly predisposed to become so, will run great risk of lapsing into the same state, if brought up under circumstances tending to increase the irritability of the nervous system, and to call their feelings or passions into strong and irregular activity. Of this description, are excessive intellectual exertion, keen competition at school, over-indulgence, capricious contradiction, and confinement in close warm rooms at home. Whereas, if subjected from the first to a mode of treatment calculated to allay nervous irritability, and give tone to the bodily organization and composure to the mind, the danger in after life may be greatly diminished, and a degree of security enjoyed, which it would otherwise have been impossible to obtain." (p. 64.)

We pass over many excellent comments upon the injurious effects upon the offspring which are derived from the union of parents too nearly allied in blood, from premature marriages, and a great disparity of years in the two parents. We believe very few practitioners are ignorant of the fact, that the state of health and conduct of the mother during pregnancy materially affect the health of the future infant; but we believe also, that from carelessness or compliance with the caprices of females, the knowledge of the abstract fact is practically of little utility because it does not lead to that serious advice and counsel which is likely to be strictly followed. To this very important subject, Dr. Combe devotes an entire chapter. There is no period of life at which it is of so much consequence to observe moderation and simplicity of diet, and to avoid the use of heating food and stimulants, or any powerful and especially sudden mental emotions, as during pregnancy. In regard to regular exercise in the open air, the greatest attention is requisite on the part of

the mother. Nothing contributes more especially to a sound state of health during gestation, and to a safe and easy recovery after delivery. With ordinary care, walking may be continued almost to the last hour, and with excellent effect upon all the functions. Every kind of violent exertion should be avoided.

The Constitution of the Infant at Birth. So far as the welfare of the child is concerned it may be considered before birth as virtually a portion of the mother's organization. Its life and growth are wholly dependent on her, and it executes no function peculiar to itself. In one sense, indeed, it may be said to carry on growth and nutrition, and to carry on its own circulation; but in reality, all these processes are so closely, though indirectly, dependent upon the mother for their continuance, that they cease with her life, and are affected by every change in her health. The unborn infant being utterly without power to supply any of its own wants, it was the purest benevolence to render it entirely dependent on the parent system, and to deny it any endowment of either feeling or intellect.

"But when the infant is once ushered into the world, what a revolution in its mode of existence takes place! In one instant it is transferred from unconscious repose, solitude, and darkness, to life, and light, and action. From being surrounded by a bland fluid of unvarying warmth, it passes at once to the rude contact of an ever-changing and colder air, and to a harder pressure even from the softest clothing than it ever before sustained. Previously nourished by the mother's blood, it must now seek and digest its own food, and throw out its own waste. The blood, once purified and restored through means of the mother's system, must now be oxygenated by the child's own lungs. The animal heat, once supplied to it from another source, must now be elaborated by the action of its own organs. Formerly defended from injury by the mother's sensations and watchfulness, its own nerves must now receive and communicate the impressions made by external objects; through its smiles or its cries it must now announce to her ear and reveal to her judgment its safety or its danger, and if any of these important changes fail to take place in due time and order, its life may fall a sacrifice." (p. 100.)

For this striking revolution in the mode of life of the new-born infant, its organization must be already prepared at the instant of birth. Dr. Combe gives a brief but very clear and correct sketch of the peculiarities of the infant organization, and the manner in which the necessary changes are brought about. Sensation and muscular motion are the first functions roused into action by the sudden entrance of the new being into the external world. In accordance with this fact, we find the nerves of sensation and motion, and the spinal marrow, from which most of them originate, already firm in structure and largely developed. The anterior and upper portions of the brain, on the other hand, which serve for the operations of the intellectual and moral faculties, then almost in abeyance, are still soft in structure and little developed, while the posterior portion lying behind the ear and connected with the feelings which have for their object the preservation of the individual, and which, therefore, come first into play, is already of considerable size. In strict harmony with this arrangement, the functions of sensibility and muscular motion are *indispensable* to the commencement and continuance of independent existence. "At birth, the lungs and respiratory muscles are, like the well-finished steam engine, quite prepared for action, but like it also they

cannot start into activity of themselves." They await the application of the impulse or the moving power, the stimulus of the respiratory nerves. If that stimulus be instantly supplied, breathing will commence; if it be delayed, the lungs will remain inactive and life speedily become extinct. By the shock primarily impressed upon the sensitive nerves of the skin of the new-born infant, by the sudden transition of the infant from a temperature of 98° or 100° in the mother's womb, to one of 60° or 65° in the atmosphere, respiration is first called into action; the same irregular action of the respiratory muscles, the same panting and sighing occurs, which a similar cause, plunging into a cold bath, produces in the adult. Nervous sensibility and muscular motion being thus roused, the next functions called into action for the preservation of life are those performed by the lungs and heart, viz., respiration and circulation. We shall not enter into the detail which the author gives of the mode in which these functions are established, or of their great and important purposes. He renders the subject of the changes which take place in the circulation at birth perfectly easy of comprehension to the general reader and medical student by a clear description and illustrative woodcuts. One peculiarity of the young infant deserves especial notice, namely, the *rapidity* of the circulation. In the first months of life the number of contractions of the heart, and pulsations of the arteries is nearly double that of the adult, and varies from 120 to 130. The breathing also is proportionally frequent, though not deep. It is like the quick short breathing of fever. But as growth proceeds and the chest expands, respiration and the pulsations of the heart diminish in frequency. In infancy, then, we must guard against mistaking a natural for a feverish pulse, and at the same time we must keep in mind that this rapidity of circulation and frequency of respiration, by increasing the nervous excitability, render the system more susceptible of febrile irritation, and hasten the progress of all its acuter diseases.

"From the same peculiarity of the infant constitution, it is obvious that the *purity* of the air in which the child lives must be much more important to its welfare at that age when respiration is imperfect and feeble, than at a later period when the function is more vigorous, and the powers of resistance of the system are greater. In infancy, accordingly, living in a pure dry atmosphere of moderate temperature is the best safeguard of health; and in early life the rapid recovery which often ensues even in very unfavorable circumstances after removal from the confined air of a city to the pure atmosphere of the country, has long been a matter of general observation. For the same reason, the mortality in infancy always bears a direct relation to the impurity of the atmosphere; it is greater in towns than in the country, and in crowded manufacturing districts than in those which are less populous and contaminated." (p. 115.)

Another indispensable condition of life, formerly provided for by the parent, which must forthwith come into play at birth is the supply of animal heat. From various physiological causes, which are explained by Dr. Combe with his characteristic accuracy and clearness, we find that the power of generating heat is feeble in infancy as compared with the adult; while at the same time a regular high temperature of the body is necessary for existence. Hence it follows that whatever withdraws heat faster than it is produced, must be injurious in exact proportion to the extent and rapidity with which the cause acts, and to the natural weakness of the constitution. It should be remembered that so far from infants pos-

possessing a power of successfully resisting cold, they, in common with the young of all animals, cannot even sustain their own temperature, and speedily perish unless duly protected externally; and that the degree of animal heat which is indispensable to the continuance of life cannot be kept up till the three great processes of nervous action, respiration, and circulation are fully established.

We cannot follow the author through the whole of the very interesting and instructive outline which he gives of the peculiarities of the infant organization and functions. But we must observe that it admirably conveys to the reader a good general idea of the constitutional tendencies of the young, with which it is so essentially important practitioners should be acquainted, in order that they may direct either their moral or medical management with that confidence and skill which can only result from their having clear and definite notions upon this subject.

Having taken a general view of the peculiarities of the bodily constitution at birth, the author enters upon the more practical part of his enquiry, viz. the consideration of the external conditions and mode of management which experience has shown to be most conducive to the full and regular development of the infant organization, and the preservation of infant health. First, the importance, as a means of health to the young, of a well-situated and well-arranged nursery is considered. The advice the author gives upon this subject is not interesting to mothers only: medical practitioners are not unfrequently consulted upon the selection of the nursery, and for much important information upon the subject we may safely refer them to his guidance. There is so much kindness of feeling as well as of sound wisdom in everything he says upon this subject, that it is with difficulty we refrain from quoting the greater part of the chapter. If we were to judge from the fashions of the day in the clothing of infants and young children, and the indifference with which practitioners in general yield to, or at least do not condemn the many evils that result from its mismanagement, we should infer that whether a young child is or is not properly protected against cold and damp, is an affair of no importance. Dr. Combe shows that the reverse is the fact, and quotes different authorities in support of his opinions. Dr. Eberle, of America, particularly calls attention to the folly and mischief of leaving the neck, shoulders, and arms of children quite bare, while the rest of the body is kept warm; a practice which is generally continued during the first five or six years of life. While adults are so careful to keep these parts so well covered, it is strange that children should be left without protection, not only in winter, but even frequently out of doors in cold and damp weather. Hence, probably, why inflammatory affections of the respiratory organs are so much more common during childhood than at a more advanced age; and that thus, too, the foundation of pulmonary consumption is often laid during the first four years of life. We find from the Reports of Mr. Farr, that young children furnish the majority of cases of pneumonia; of 379 fatal cases of pneumonia in the metropolis, and in some country districts, 228 were children under three years of age. Knowing, however, the disposition to run into extremes, Dr. Combe very properly guards against the opposite danger of loading the child with too many clothes, and covering the shoulders and neck with warm tippets or shawls, even within doors. More mischief may be done by the excessive

relaxation thus induced, than by having them exposed. All that is required is, that the ordinary upper dress shall extend sufficiently high to protect the neck and upper part of the chest from variations of temperature. The head is commonly kept too warm in infancy; which, considering the natural tendency to nervous excitement and rapid circulation in early life, is an improper practice. When the head is kept very warm, the nervous excitability is greatly increased: every change makes an impression upon the infant, and any accidental irritation is more likely to be followed by convulsions. Of equal importance to the dress by day is the provision of proper bed-clothing during the night. If an infant is buried under a mass of bed-clothes when asleep, and dressed in the ordinary way when awake, the very transition is apt to be hurtful. Many mothers carefully guard against too much wrapping up by day, who seem to think that at night the health and comfort of the infant depended entirely on the quantity of blankets it could sustain without being smothered.

"In arranging night-coverings, the soft feather-bed is very often estimated as nothing; or, in other words, the same provision of blankets is considered equally indispensable, whether we lie upon a hard mattress, or immersed in down. It is from this confusion that the common mistake above alluded to takes its rise. The mother, looking only to the coverings laid over the child, forgets those on which it lies, although, in reality, the latter may be the warmer of the two. An infant deposited in a downy bed has at least two thirds of its body in contact with the feathers, and may thus be perspiring at every pore, when, from its having only a single covering thrown over it, the mother may imagine it to be enjoying the restorative influence of agreeable slumbers. In hot summer weather much mischief may be done by an oversight of this kind." (p. 185.)

Food of the Infant at Birth. Upon this subject we have constantly to contend with the prejudices and "experience" as it is called, of mothers and nurses. The vulgar notion that a child requires to be fed immediately after birth rests on the absurd idea of its having undergone a long fast; whereas, it ought rather to be considered as having just finished a copious meal. During the whole period of its intra-uterine life, it has been supplied with a rich and nutritious blood prepared expressly for its support. Every practitioner of ordinary experience must admit the truth of Dr. Combe's remark, that there is a disposition on the part of mothers and nurses to consider nourishment as, from the first moment of existence, the grand agent which is to avert or cure all possible evils to the child, and thus is the infant stomach constantly oppressed with loads which it is totally incapable of digesting. Many of the "inward fits," "cramps," and "colics," which afflict infancy, owe their origin solely to this cause; and were the laws of the human constitution better known and acted upon, the difficulty of rearing the young would be greatly diminished. When, from the state of the mother, it becomes necessary to administer food to the new-born infant, we should adhere as closely as possible to the intentions of nature, and prefer that kind of nourishment which approaches most nearly to the mother's milk. Were it possible to put the child to the breast of another woman, also just delivered, it would be desirable to do so, but this cannot always be done. The next best food is fresh cow's milk, tepid and diluted with one half of water and slightly sweetened. Gruel, pap, panada, &c. are all improper; the stomach of a new-born child is incapable of digesting any of these articles. Again, too, the quantity of the food is just as important

as the quality. A tablespoonful may be given once in three or four hours. If the mother is in health, and the secretion of milk not interrupted, there can be no fair pretence for giving the infant any other food than the mother's milk for several months. Nature unequivocally indicates this truth, by the absence, till a later period, of the organization required for the preparation and digestion of more solid kinds of substance. The next point to determine is, how often may the infant be put to the breast. Here, again, it is the duty of the practitioner, which he too frequently neglects, to guard the parent against excess. If the stomach is too frequently replenished, or too much distended even with the mother's milk, digestion is enfeebled, and gripes and flatulence arise and torment the child. The usual practice with mothers is to offer the breast whenever the child cries or appears uneasy, no matter from what cause, as if hunger were the only sensation which the young being could experience. Crying is considered as an infallible sign of an empty stomach. But

"New as the infant is to the surrounding world, it shrinks instinctively from every strong sensation, whether of heat or of cold, of pressure or of hardness, of hunger or of repletion. Its only way of expressing all disagreeable feelings is by crying. If it is hungry, it cries; if it is overfed, it cries; if it suffers from the prick of a pin, it cries; if it lies too long in the same position, so as to cause undue pressure on any one part, it cries; if it is exposed to cold, or any part of its dress is too tight, or it is held in an awkward position, or is exposed to too bright a light or too loud a sound, it can indicate its discomfort only by its cries; and yet the one remedy used against so many different evils is, not to find out and remove the true cause of offence—but to offer it the breast! No doubt, silence is sometimes obtained by the apoplectic oppression of a stomach thus distended; but no sane being will seriously contend that such quiet is really beneficial, or is such as any mother ought to content herself with procuring." (p. 196.)

On an average, during the first weeks of existence, the child may be put to the breast about every three hours, and as it becomes older the interval may be gradually extended. Even from earliest infancy, regular intervals should, as far as possible, be observed in giving nourishment; and it is surprising how soon the infant accommodates itself to the practice. The quiet repose enjoyed during the interval is beneficial alike to parent and child.

As it sometimes happens that the mother cannot, and sometimes that she will not, suckle her child, a wet nurse becomes necessary, and Dr. Combe enters at some length upon the choice, properties, and regimen of the wet nurse. Artificial nursing, or "bringing the child up by hand," ought never to be preferred as a matter of choice. Strong healthy children may thrive under good management, although denied the breast; but very few delicate children, and still fewer of those born prematurely, survive when brought up by hand. When a child is to be reared by the hand, we have to determine, first, the kind of nourishment; and, secondly, the manner in which that nourishment ought to be given; and upon both these points the young practitioner will do well to consult Dr. Combe. Upon the subject of weaning, too, we find much sensible advice, which we shall briefly notice; for although the general rules as to the mode of weanings, and the period when infants ought to be weaned, are, we doubt not, well understood, we have had many opportunities of knowing that the occasional necessity or at least the advantage of deviating from those

rules is very frequently lost sight of. The time of weaning ought to be determined chiefly by two circumstances: the health and state of the mother, and the development and health of the child. When the health of the mother continues perfect, and the supply of milk abundant, weaning ought not to take place till the development of the teeth shows that a change of food is required. This usually happens about the ninth or tenth month; but in delicate children teething is not unfrequently delayed for some months longer, and in such cases, weaning ought not to be permitted so soon. If, however, the supply of milk proves insufficient for the nourishment of the child, and the health of the mother begins to suffer before the expiration of the usual time of suckling, it may become necessary both for the infant's and mother's sake to wean it gradually before any indications of teething arise. In some parts of the continent suckling is continued for eighteen months or two years; but, unless in very feeble and ill-constituted children, this is an unnecessary prolongation of the process, and however well the mother might appear to bear it at the time, it would probably be ultimately injurious to her. In weak scrofulous children, the teeth are frequently late in appearing, and this may be taken as a sure sign that the breast ought still to constitute the chief source of their nourishment. Sir James Clark recommends the children of consumptive parents to be suckled for eighteen months or two years, as the surest means of rendering them healthy and robust; and we believe with Dr. Combe, that the soundness of the principle is borne out by experience, provided, of course, that a sufficient supply of good milk can be obtained for that length of time from a healthy nurse. It is very desirable, if possible, to wean a child in fine weather, when it can be much in the open air; as nothing tends more than such exposure to soothe the nervous irritability so often consequent upon the change. The child should be accustomed gradually to the use of other food, and should be taken from the breast by equally slow degrees. Weaning ought not to be effected while the infant suffers under the irritation of teething or any active disease, as the risk of convulsions or serious intestinal disorder will be thereby greatly increased. If, too, the stomach and bowels of the child become much deranged when weaning is attempted, it is prudent to leave off any other kind of nourishment for a time; again confining it to the mother's milk alone, until by appropriate treatment the digestive organs are placed in a better condition. The ordinary articles of food for the child when it is weaning are well known, but sufficient care is not taken that the transition to a substantial diet is very gradual. Dr. Combe very properly cautions his readers against having immediate recourse to medicine to remedy every little ailment which may appear during the time of suckling or weaning. Unfortunately, a propensity exists, perhaps as frequently with young practitioners as with mothers, to consider disease as an extraneous something thrust into the system, which must be expelled by force before health can be restored, and with which the mode of management has little or nothing to do: whereas, disease is nothing more than an aberration from the regular mode of action of the organization, generally caused by errors of regimen, and very often to be removed by a return to the right course. The consequence of viewing disease as arising from something in the system requiring to be removed is, that on the first symptom of its

appearance, medicine is resorted to for its expulsion, and probably calomel administered as a purgative, while the error in diet is left in undisturbed operation. Thus the evil is aggravated instead of being cured, and the constitutions of children are not unfrequently thus ruined by medicine, when they might have been restored to health by proper management without a single dose.

"It is the commonest of all remarks heard in a nursery, that 'the child was uneasy, or griped, or feverish, and I gave it so and so,' without the smallest allusion being made to why it was uneasy or feverish, or whether anything was done to remove the offending cause. In my opinion, a more pernicious habit than that of constantly giving medicine to children does not exist, and I would hold the mother or nurse, who should make frequent use of it without advice, as utterly unfit for the duties imposed upon her." (p. 248.)

We may admit that the language here quoted by Dr. Combe is confined to the nursery, but the mischievous practice that he deprecates has a much wider range.

One chapter is devoted to the subjects of *cleanliness, exercise, and sleep in early infancy*. On all ordinary occasions Dr. Combe prefers pure soft water, without any soap, for the ablutions of young children. He thinks "that soap is generally unnecessary, and frequently hurtful." The manner in which young children are washed is by no means so unimportant as may be thought. The safest and most convenient way of washing the infant is by immersion in a bath, comfortably arranged for the purpose. By this means its wet body is exposed to the air only for a moment, when about to be dried. But if, as is usually the case, the child is placed in a small tub, with the greatest part of the body out of the water, and is washed by laving the water about it with the hand or a sponge, the continued and repeated exposure of its delicate skin to the warm water and cold air alternately is very apt to be followed by chills and other bad consequences. The infant should be quickly and gently rubbed dry with soft napkins, and afterwards with the hand, and then carefully dressed. It is of course the duty of the nurse to wash the child, but the medical adviser surely ought to know the best and safest mode of performing this very necessary duty. On account of the great susceptibility of cold which exists in infancy, and the difficulty with which the system resists the influence of any sudden change, the temperature of the water ought, at first, to be nearly the same as that of the body; namely, about 96° or 98° Fahrenheit, and always to be regulated by a thermometer as the only sure test. If the nurse judge by the hand alone, she will often commit an error of several degrees, according to the varying state of her own health and sensations. The younger the infant, the more rigidly should this standard be adhered to; as it is not till after growth and strength have made some progress, that it becomes safe to reduce the temperature by a few degrees. In addition to the regular morning ablution, the tepid bath should be repeated every evening for a few minutes.

"Properly managed, and not too warm, it has the double advantage of soothing the nervous system, which is always irritable in infancy, and of sustaining an equable circulation of the blood towards the surface, and thus warding off internal disease. It ought not, however, to be either too long continued or used in a cold room. With these precautions, the most unequivocal advantage often results from its use, especially in scrofulous and delicate children. For restless

and irritable children also, the evening bath is often of immense advantage, from the quiet and refreshing sleep which it rarely fails to induce. As a sedative too, it is of great value in subduing nervous excitement. But when used too warm, or continued too long, the bath is apt to excite undue perspiration, and to increase the liability to cold." (p. 255.)

If from mismanagement, or any other cause, the child is frightened by immersion in warm water, or if the bath decidedly disagrees with it, simple washing or sponging with tepid water should be substituted. Some physicians prefer the cold to the tepid bath, even for infants, but reason and experience concur in condemning it; and unless the infant is of a very strong constitution, it rarely bears the cold bath without injury. In a few months the temperature of the water may be gradually reduced for the *morning* ablution, providing the child is healthy and the weather warm.

Exercise in infancy is as essential to health as at any period of life. To regulate it properly, we have only to keep in view the state of the infant organization and the laws under which the principal functions operate. At birth there is no desire for voluntary motion, and no will to direct it. In ordinary cases it is not till the sixth or seventh month that the bones, ligaments, and muscles become solid and powerful enough to support the burden of the head, or to fit the child for sustaining itself in a sitting or erect position. For some weeks after birth, then, exercise should be of a purely passive kind, and we ought not to excite the child to premature exertion, or place it in a sitting or erect position. From neglecting this precaution the soft and yielding spine often bends under the weight of the upper part of the body, and permanent deformity is produced, and as a necessary consequence undue pressure upon the lungs, heart, and digestive organs, and disorder of their respective functions. Hence in the beginning of life, exercise ought to consist simply in being carried about the nursery, or into the open air, in a horizontal or slightly reclining position on the nurse's arms, or in a carriage, and in gentle friction with the hand over the whole surface of the body and limbs—an operation which is not less agreeable to the infant than beneficial in promoting a free and equal circulation. If the child is born in summer or late in spring, its exercise should be confined to the limits of the nursery and adjoining rooms for about a fortnight; it may then be cautiously carried out in the open air for half an hour at a time. "If it is born in winter or late in autumn, it ought not to be taken out till after the lapse of three or four weeks, and then only in fine mild weather, and for a short time." In proportion as the organization of the child becomes developed, and its capabilities increase, it begins to show active desires, and wishes of its own which require a corresponding modification in its treatment. We can only notice one of the many useful hints Dr. Combe offers upon the subject of infantile sleep. Many nurses and mothers imagine, and practitioners if they know often fail to correct the mischievous error, that it is of no consequence how noisy the nursery is while a child is sleeping, provided the child is not roused up broad awake. But it is of consequence. If the room is not quiet the child's sleep is neither sound nor refreshing, and thus is frequently (we speak from experience of the fact) laid the foundation of that extreme nervous susceptibility which renders attacks of convulsions so likely to occur

from various occasional causes, that would with more prudent management be escaped from with impunity.

“There are few things which distress an anxious mother or annoy an impatient nurse more than sleeplessness in her infant charge, and there is nothing which both are so desirous to remove by the readiest means which present themselves. A healthy child properly treated, and not unduly excited, will always be ready for sleep at the usual time; and when it appears excited or restless, we may infer with certainty that some active cause has made it so, and should try to find out and remove it. If no adequate external cause can be discovered, we may infer with equal certainty that its health has in some way suffered, and that it is sleepless from being ill. In this case, the proper course is to seek professional advice, and to employ the means best adapted for the restoration of health, after which sleep will return as before. From not attending to the true origin of the restlessness, however, and regarding it merely as a state troublesome to all parties, many mothers and nurses are in the habit of resorting immediately to laudanum, sedative drops, poppy syrup, spirits, and other means of forcing sleep, without regard to their effects on the disease and on the system; and are quite satisfied if they succeed in inducing the appearance of slumber, no matter whether the reality be sleep, stupor, or apoplectic oppression. The mischief done in this way is inconceivably great, and astonishment would be excited if it were generally known what quantities of quack ‘cordials,’ ‘anodynes,’ and even spirits, are recklessly given with the view of producing quiet and sleep.” (pp. 280-1.)

Passing over many good comments upon the subjects of teething, weaning, and errors in diet, we come to one point which we cannot refrain from noticing, because from what we almost daily witness in the families of medical practitioners, they need the advice given by the author, as much as mothers to whom he more particularly directs it. Nothing is more common than for the greatest anxiety to be felt as to the regularity with which young children take their meals, at stated hours in the nursery, *but*, the same children are often brought to table at the end of their parents’ dinner, and wine, fruit, and confections given them, when nothing but mischief can follow such indulgence. If the child is denied the gratification of partaking of what he sees freely granted to all around him he becomes fretful and discontented.

“In their conduct towards children, parents ought never to forget the fundamental principle, that every faculty is roused into action by the presence of its own objects, without any intermediate operation of either reason or judgment; and that both appetite and feeling may be thus cherished and strengthened simply by reiterated exercise. The prayer, ‘Lead us not into temptation,’ recognizes this truth in a very pointed manner, and attaches to it not more importance than it deserves. Many an individual remains pure and virtuous in the absence of the object of temptation, who would find his powers of resistance taxed to the uttermost by its presence. What, then, are we to think of the wisdom of those who, convinced in their own minds of the impropriety of unduly cultivating the appetites of their children, nevertheless unfairly subject them to temptation by bringing them into contact, after their own whims, with the jellies, puddings, and fruits, which were never intended for them? If the children are brought to table and yet denied a share in these good things, they naturally feel themselves wronged and harshly treated in having desires excited which are not to be gratified. If, on the other hand, after having received their regular meals, they are allowed to partake in another, of which the system does not stand in need, the first result will be the improper pampering of a false appetite, and the second most probably a fit of indigestion. As a general rule, therefore, children ought never to see either food or delicacies, except what are intended

for their own use, and at their regular meals; and the practice of giving biscuits, sugar-plums, cake, &c., between meals, ought to be positively forbidden. Even very young children are sufficiently clear-sighted to perceive, or at least to feel, inconsistencies in the conduct of their parents, and cannot understand why, if it is right to give them sweetmeats or wine one day in addition to their ordinary fare, it should be wrong to do so another, or every day. If, again, it is wrong to do so at any time, the confidence of the child in the truthfulness and consistency of the parent is naturally shaken, when he finds the latter in any instance deliberately doing that which he as deliberately condemned." (pp. 309-11.)

The last chapter of the work treats briefly on the moral management of infancy, and is, as we stated in our last number, full of admirable and not a few novel observations.

We have dedicated much more space to Dr. Combe's work than treatises which are chiefly addressed to the public generally deserve or require. But we have found in it so much useful information for the medical reader upon subjects which practitioners very much neglect, that we could not dismiss it more briefly. We know from experience how difficult it is to command the attention of medical students to the subject of the general management of infants and children, or a detailed account of the business of the nursery. It cannot however be denied that it is as incumbent upon them to be as well acquainted with these topics as with infantile diseases, in order that they may be prepared to correct the numerous and glaring errors which are hourly committed by inexperienced mothers and "experienced" nurses. Medical practitioners, in general, confine themselves too much to the mere art of prescribing medicines for children; if they were equally attentive in prescribing for those who have the charge of them a correct and steadily-pursued system of management, they would ward off altogether many of the most serious and common ailments of infants and children, and thus achieve what is our duty, and ought to be our wish, namely, the prevention as much as the cure of disease. They who are desirous of obtaining information upon these very important subjects can consult no better, no safer, nor more agreeable guide than Dr. Combe; nor can they perform a kinder act to children than that of strongly recommending his work to parents.

ART. XIV.

An Essay on the Treatment of some Affections of the Prostate Gland.

By R. A. STAFFORD, Surgeon to the St. Marylebone Infirmary.—
London, 1840. 8vo, pp. 86.

THE object of the present brief essay is to direct the attention of the profession to a *new mode* of treating some of the affections of the prostate gland, and to state the experience of the author regarding it. Unimportant as this piece of structure seems to the animal economy in its normal condition, it is nevertheless productive of much misery under the influence of morbid action. Its diseases are generally tedious and difficult of removal; and, even when not immediately threatening the destruction of life, fill the mind of the sufferer with anxiety and apprehension. We are at all times ready to hail the appearance of any work wherein "the old beaten path" is deserted, and something brought forward which at once claims our respectful attention, and promises to open up a field of future utility.

Above all, we are captivated by a strictly practical work, where we find facts of the most interesting kind faithfully narrated, and from which conclusions the most important can be fairly deduced.

Mr. Stafford has long been favorably known to his professional brethren for the skill which he has displayed in overcoming, by artificial contrivances, some of the diseases of the urinary organs; and although we may not be inclined to fall into some of his views, or adopt all his plans of treatment, we cannot refuse our tribute of praise to his zealous exertions. In the short essay before us, he has confined his remarks to chronic enlargement of the prostate gland, and particularly of its third lobe, and we shall best serve our purpose by presenting our readers with an account of the *new* mode of management which the author has adopted, and for the most part in his own words. After a description of the usual symptoms, and observing that it is in the early and middle stages of the disease that most benefit is to be derived, he proceeds:

"The methods I have employed for the treatment of an enlargement of the third lobe of the prostate gland are, the application of certain substances upon it; puncturing the part with a particular instrument I have invented, and perforating it with the urethral perforator, according, in all cases, to the extent of its increase of size. If the third lobe has only partially enlarged, I have then employed remedies, such as iodine, the iodide of potassium, belladonna, &c. locally, always in a diluted form, and combined or uncombined with other substances as the urgency of the case might require. If it be so large that it will not yield to the application of these substances, I have in some instances punctured it with advantage, and when its volume has been so great as to block up the neck of the bladder and cause retention of urine, I have then been under the necessity of perforating it." (p. 16.)

After remarking that it was the effect of iodine over glandular swellings which led him to think of its employment in enlargement of the prostate, he proceeds:

"I felt it easy to make it to be absorbed through the substance of the prostate gland, by using it in suppositories passed up the rectum, but the difficulty was to apply it on the third lobe without touching any other part of the urethra. I made several attempts to accomplish this; first, through a tube, then in a groove at the end of a solid instrument, then by the method by which caustic is applied to a stricture, according to Ducamp's plan, and others; but none of these answered. I at length thought of a very simple mode of applying it, which is by charging a bougie at its point with the *iodine, iodide of potassium*, or any other substance you may wish, and then dipping it into melted tallow so that a coating may be formed upon it. By such method I have been enabled to introduce any application I might desire up to the prostate gland, without touching the surface of any other part of the urethra. The bougie having reached the desired spot, its point is allowed to rest upon the diseased part, when the tallow gradually melts and brings the iodine or iodide of potassium into contact with it, and by drawing the bougie gently backwards and forwards the necessary friction is produced. I have found it advisable to be very cautious as to the strength of the application, for the prostate gland will not bear a strong preparation either of the iodine or iodide of potassium at first. It is usually in an irritable or inflamed state; consequently, even the mechanical pressure of the bougie will give pain. The preparations I have used therefore have been very mild. At first I have found it necessary to employ even anodynes, such as belladonna, opium, hyoscyamus, &c. to quiet irritation and pain. When these have subsided, I have begun carefully by introducing the iodide of potassium in the proportion of *one grain to the drachm of unguentum cetacei*, and increasing it as the patient could

bear it. I have then gone on with two, three, four, five, and even as far as *ten grains*, or a *scruple* to the drachm, according as the case required it. After this I have added iodine to it; half a grain, one, two, three, four, or even more grains in the same manner. The surgeon who applies it can alone judge of its effects." (p.19.)

The above extract contains the whole of Mr. Stafford's observations respecting the use and application of iodine in the earlier stages of enlarged prostate gland. They are followed by a detail of cases illustrating still farther the efficacy of this plan of treatment. These cases are also valuable in proving, what we have long known to be true, that enlargement of the prostate is not a change incidental merely to old age, but is met with at all periods of life as a consequence of stricture, gonorrhœa, or other affections of the urinary organs. We do not deny, be it understood, that enlargement is not a common sequel of old age; but we mean to affirm that it is, contrary to general supposition, likewise frequent in young subjects. This is a point of very great consequence to be understood, for we have often been able to mitigate symptoms where, from the age of the individual, stricture alone had been suspected, and, from no such impediment having been found or removed, the case had been abandoned as incurable. We would wish it then to be more universally known that disease of the prostate gland prevails at all periods.

In the *second* place, and without any preliminary explanation, the author details two cases wherein he punctured the enlarged lobe. When the gland is "so large that it will not yield to the application of these substances, (iodine, &c.) I have in some instances punctured it with advantage." We have no experience of such a proceeding, but Mr. Stafford has performed it several times. When the third lobe forms an obstinate valvular obstruction about the neck of the bladder, repeatedly puncturing its substance would seem to have the effect of dissipating the swelling. When the gland is thus punctured, a mucous fluid generally makes its escape, but no hemorrhage or other unpleasant symptoms follow the operation. "Experience alone can show its ultimate utility; but from mere reasoning, the puncturing of an enlarged and hardened part, with the view of reducing it, appears rational, and facts even, as far as they go, lead us to such a conclusion." Whether this theory is sound or not we will not stay to determine; we shall only observe that the prostate gland when not in a highly inflamed or irritable state may be freely dealt with, and that many surgeons err in their treatment of some cases of retention of urine, from not being sufficiently aware of this circumstance.

In the *third* and last place, the author relates three cases where he perforated the middle lobe of the prostate gland. When the swelling is so great that the neck of the bladder is completely blocked up, and no catheter can be passed onwards into the interior, the patient must be relieved at all hazards, else the bladder will slough or urinary coma will succeed. Under these circumstances, the surgeon is reduced to the alternative of either puncturing the distended organ, or carrying an instrument through the seat of obstruction.

We may here remark that, in the whole course of our own experience, we have not met with one single instance where it was necessary to puncture the bladder on account of disease of the prostate; and we do hope, for the credit of British surgery, that operations in such cases are now done away with. We repeat that puncturing the bladder is un-

necessary, and therefore unjustifiable, in enlargement merely of this glandular organ. There is not, or cannot be, an instance where the obstruction may not be overcome by milder and far less dangerous measures. When the lateral portions of the prostate are enlarged, the swelling, although great, is never such as to prevent a catheter of sufficient length and flexibility from entering the bladder. It is when along with this the third lobe is so increased in size as to form a direct mechanical obstruction at the commencement of the urethra that the case assumes a very formidable aspect. Even here the want of success is chiefly attributable to the want of tact on the part of the operator, and especially to the use of an inflexible instrument which cannot accommodate itself to the state of the passage, and is with the utmost difficulty guided onwards by the finger in the rectum. By the use of a small elastic catheter without a stilette, we have succeeded in relieving retention of urine under the most urgent circumstances. We should say, as a general rule, that the greater the swelling, the less chance there is of passing a stiff, curved instrument. If, after the trial of all ordinary expedients, the bladder still remains unrelieved, then the best and safest plan is unquestionably to perforate the obstruction. Our readers, we presume, are aware that this plan did not originate with Mr. Stafford, but has been known and acted on for several years back. The perforation is easily accomplished, and is never followed by disagreeable effects.

Of Mr. Stafford's three modes of treatment we have to remark, that of the first two we can at present say nothing from our own experience; but should they be found as useful in the hands of others as they have been in his own, he will be entitled both to the thanks of his medical brethren and of those who are the subjects of this troublesome disorder. It is a rare thing for us to have to complain of brevity, but in Mr. Stafford's pamphlet the explanation is too short compared with the number of pages which the cases are made to occupy. There is an obscurity and a defect too in some parts of the description which we should wish to see remedied. We are at a loss, for example, to know exactly whether he uses the iodine in substance or made into an ointment; and if, as it would seem, the latter, how, we might ask, does he preserve it from melting when the end of the bougie is dipped into hot tallow? Again, we are told that partial enlargement of the third lobe may be discovered "by passing a catheter immediately after the patient has made water; urine will be left in the bladder, amounting to two, three, four, five, or six ounces, and even more, according to the extent of the increase of its volume." The same thing is found where the body of the gland is itself enlarged, and where the portion which forms the third lobe has not participated in the disease. The bladder being unable to completely empty itself is no proof therefore that the third lobe is affected, unless we have first ascertained, by examination through the rectum, that the rest of the prostate is sound.

We have made these remarks more with the view of drawing the author's attention towards them at a future period, than for the purpose of exhibiting our peculiar faculty for finding faults. The essay is decidedly a practical one, and well worthy of perusal; and we sincerely wish that the experience of the author may be confirmed by others who have the best opportunities of testing its merits.

ART. XV.

First Principles of Surgery, being an Outline of Inflammation and its Effects. By GEORGE T. MORGAN, A.M., formerly Lecturer on Surgery at Aberdeen.—*Edinburgh*, 1840. 8vo, pp. 780.

It gives us great pleasure to be able to repeat, in regard to the second and third parts of this treatise, which complete the work, that which we formerly stated as our opinion of the first, (Vol. IV., p. 185-8.) We regard it as one of the best guides to the study of inflammation and its effects which the surgical student can employ; characterized as it is not only by thorough knowledge of the subject, but by that wisdom which is the result, in the well-trained mind, of the acquirement of it, and which is often lamentably deficient when the stores of information are most full. The opinions of others are made by Mr. Morgan his own, not in proportion as they tally with a preconceived theory, but according as they are borne out by general experience; and the student is thus prevented from acquiring those exclusive notions in which some teachers are in the habit of training their pupils, and, on the other hand, from being perplexed by the multitude of conflicting statements which others mistake for scientific instruction.

The parts now before us are devoted to the consideration of the treatment and the (so called) terminations of inflammation. That they contain little of novelty is not to be imputed to them as a fault, for they lay claim to none; and every one conversant with the business of instruction must be aware how much more practically useful is a judicious eclecticism than the inculcation of untried doctrines, however plausible. In his treatment of acute inflammation Mr. Morgan agrees with all but the votaries of the *médecine expectante*, in considering bloodletting as the most important remedial agent we possess. We fear, however, lest his expressions on this subject may mislead his young and ardent readers into an incautious use of the lancet. In Mr. Morgan's own hands we do not doubt that is a safe as well as an efficient weapon; but we think that it ought to be more fully guarded, in the hands of the student and junior practitioner, by a knowledge of the very frequent ill effects of over depletion.

We are happy to see that Mr. Morgan does not share in the anti-mercurial mania which prevails at present in some parts of Britain. His observations on the use of this remedy in the treatment of acute inflammation we consider extremely sound. In point of importance, he places it next to bloodletting; taking care to explain, however, that it is only when employed in combination with, or subsequently to, free withdrawal of blood that its good effects can be looked for. He is quite ready to acknowledge, also, that there are some cases in which it seems to have no control over the morbid action; others in which its influence is doubtful; and others again where, either from the mode or time of its administration, it has but little effect. He has no great confidence in its employment in inflammation of the mucous membranes; and in inflammation of the substance of the brain his experience leads him to consider it as altogether useless. The following remarks on its *modus operandi* we deem well worth quotation.

"The immediate benefit to be expected from a mercurial plan of treatment is, in the meantime, a matter of speculation. The peculiar action of mercury on the system is imperfectly understood; and we are much in want of some careful and well-conducted trials, by which its application in cases of inflammation might be indubitably determined. To us its good effect seems principally to arise from its influence over the capillary circulation, in the way of altering the secretions, whether natural or morbid, in different parts of the system; and more especially of preventing or removing those depositions proceeding from continued inflammatory action in a part, and over which common evacuants appear to have no control. Were we to go more minutely into the consideration of its effects we should say that it possesses a greater power in preventing the deposition and assisting in the removal of lymph than any other species of effusion; and this more particularly in some structures, as the serous, than in others. We are of course far from wishing to assert that this is the only way in which mercury proves useful in inflammation, as its good effects are visible in cases where those changes have not yet commenced; all we mean to intimate is that its efficacy is pointed out to us at least to be in so far as we have stated. Thus, in *iritis*, where lymph has been thrown out on the surface of the membrane, mercury not only prevents its further effusion, but promotes the absorption of that which has been deposited. In *laryngitis* and *croup* it operates after the same manner, and checks that effusion of lymph which proves so great a barrier to respiration; although, in the latter case, from the uniform (?) extension of the disease to the bronchiæ, we must confess we have derived little satisfaction from its most liberal use, and have only been compelled to have recourse to it in the absence of a better remedy. Its influence in removing the matters deposited during local inflammation is also well illustrated in chronic enlargement of the testicle, where the continued use of mercury will alone effect a permanent cure." (p. 255.)

On this last point we may remark that Mr. Morgan scarcely gives sufficient credit, in our opinion, to the efficacy of iodine, especially when combined with mercury, in removing the products of chronic inflammation. His reference to the case of *iritis*, as illustrating the good effects of mercury in acute inflammation of serous membranes, seems to us extremely in point; and we have often been surprised that it has been made so little use of in the discussion. Those who have witnessed the treatment of many cases of this disease are well aware that it is not only in its syphilitic form that the good effects of mercury are evident. It is true that there are many cases that resist it; but in these its administration is usually contra-indicated by some peculiar state of the system over which it is known to have little or no control. But in the pure athenic inflammation of the iris, brought on from exposure to cold, from external injuries, or other obvious causes, in subjects of ordinary constitutions, mercury, administered in time and with proper adjuncts, may be regarded as almost a specific. Here we have the inflamed membrane under our eyes, and the effects of the disease visible from day to day. And who is there, that has had the disease under his care, that has not seen the symptoms that were previously advancing with alarming rapidity, threatening complete loss of sight, and accompanied with intense pain, suddenly checked,—the pain diminishing, the pupil clearing and becoming regular, the flocculent masses of lymph that previously lay upon the membrane disappearing, and the patient gratefully acknowledging the improvement—on the day, nay almost the hour, that the affection of the mouth begins to show that the system is under the influence of the medicine? Now, so far as our experience goes, and it has

not been small in this class of cases, we confide so much in the curative effects of mercury in uncomplicated cases of iritis, that we seldom should think it necessary to have recourse to more than topical bleeding as an adjunct. But, on the other hand, if the horror of mercurial poisoning should lead to the neglect of this remedy, little check can be put to the disease (as we have more than once seen where this plan of treatment has been attempted) save by general bloodletting, carried to an extent that cannot but be productive of permanent injury to the patient. We might speak in still stronger language of the efficacy of mercurial treatment in almost all cases of syphilitic iritis in which the constitution has not been shattered by the previous disease and by injudicious treatment of it; but that would be introducing a question foreign to our present object. We trust that we have said enough to prove that in the case in which, from local circumstances, we can most clearly trace the influence of mercury as a remedy for inflammation of membranes of the serous character, it is extremely decided. Mr. Morgan insists much, and with reason, on the necessity for rapidly bringing the system under its influence in cases in which life is threatened.

"We are perfectly convinced that much of the scepticism still lingering respecting the efficacy of mercury in inflammation arises from its not being administered in sufficient quantities. . . . We must of course prescribe according to the seat and violence of the inflammation, and likewise the age of our patient: but if, next to bleeding, we place our hopes in the use of mercury, let it be administered with the view of bringing the system quickly under its influence; and with the remembrance before us that there is a period beyond which our best efforts will not avail."

The use of other remedies for acute inflammation is discussed with the same good sense, and with that clearness which marks the mind of one who knows how to profit by experience, whether his own or others'. The concluding remarks we consider as of peculiar value; and as we know that the plan of treatment recommended in them is often ridiculed as unphilosophical, in spite of its success, we shall quote them nearly in full.

"The treatment of acute inflammation is not to be pursued according to one steady undeviating rule, but must be modified according to many circumstances, the principal of which are the seat and duration of the disorder, the effect of previous remedies, and the powers of the system which remain. We have, in the course of the preceding pages, pointed out the plan to be adopted, when the disease is recent, in a vigorous or weakly habit; and we have now briefly to allude to the case where intense inflammation is coupled with general exhaustion. . . . Inflammation may assume a typhoid character in consequence of active means having been neglected; or it may have done so at the commencement, and is then often united with some peculiar habit of body. In the first case it is necessary to recollect that this ultimate stage may arrive in any instance, and that the local symptoms remain, while the constitutional alter or decline. In the second, that arising from peculiarity of habit, the head is almost invariably the seat of mischief, and fatal changes will be going on in the interior of the cranium, while the vital powers are worn out, as we witness so prominently in the delirium tremens of the drunkard. Both are easily recognized by the urgency of the local symptoms, the degree of typhoid fever, the general prostration of strength, and the quick but feeble pulse.

"There is no situation, indeed, in which the surgeon can be placed where nicer discrimination is required; and on the prudent regulation of his means

alone depends the chance of preserving life. It is in such cases that we are obliged apparently to break through all established rules, and adopt a line of treatment which seems at first sight to be inconsistent. If blood is taken from the arm the remaining powers are quickly extinguished; and even the operation of a purgative is attended with considerable risk. The surgeon feels himself at sea and knows not how to act. On the one hand destructive inflammation must be subdued, else fatal lesion will ensue; on the other, the system is incapable of bearing the necessary depletion, and the declining strength must be supported. Our dependence, in the first place, is placed on *local bleeding* along with *general stimuli*; and the combination of these, where there is violent inflammation in a part with little power in the system at large, is by no means inconsistent. Let us not, however, be mistaken on this subject. Where depletion, local and general, has been freely practised, and inflammation still lingers, that is not a case where the treatment we have recommended would be successful, but one which will more probably yield to counter-irritation, along with the continued use of calomel and opium or other internal means. It is where these remedies have been neglected; where inflammation has been allowed to run on without evacuations having been employed, and typhoid fever and prostration have set in; or where the disease is accompanied by these symptoms from the commencement, that the unloading of the inflamed part, along with the use of stimulants, is so advantageous. Twelve hours will, in all probability, decide the patient's fate; and we must anxiously ponder upon, and take every circumstance into account, before we determine on what course is to be pursued. The effects of the stimulants must be strictly watched, and the utmost precaution exercised that neither the depletion on the one hand, nor stimulants on the other, be carried into excess. It requires, no doubt, the greatest practical skill to adjust them; but it is in this way only that we can bring these hazardous cases to a fortunate termination." (pp. 297-9.)

Mr. Morgan is evidently referring chiefly to surgical cases; but his remarks apply equally well to fever accompanied with local excitement; and the change of practice in the treatment of this disease—the administration of stimulants where they would have been formerly considered as completely contra-indicated—has been productive of the happiest consequences.

The treatment of chronic inflammation is next described with the same good sense: and from this the author goes on to adhesion. The chapter on this subject we are disposed to regard as the least modern of any part of the work. Mr. Morgan is a zealous upholder of the Hunterian doctrine of *adhesive inflammation*; and not to mention Dr. Macartney, whose work was published, we believe, some months before the second part of Mr. Morgan's, the opinions of some other authors than John Bell should have been noticed on the other side of the question. Under the same title we find, what we should scarcely have expected, the whole subject of hemorrhage included. The two are certainly closely connected in practice, but the data upon which the principles of their treatment are founded are sufficiently different.

The third part commences with suppuration, which is very ably treated and explained according to the knowledge supplied by the most recent observations. He zealously upholds, in opposition to Hunter, the doctrine that pus is always to be regarded as a product of inflammation; and here we are more disposed to agree with him than in regard to organizable lymph. Under this head hectic fever is ably described; although, as Mr. Morgan justly remarks, "it is a sympathetic condition of the system, not to be viewed as alone dependent on excessive discharges of

purulent matter, but as arising likewise from local irritation, where little or no pus may be secreted. Its immediate exciting cause is undeniably some local disease, often a great and incurable one, where there is no power of reparation in the part itself, no assistance to be derived from nature or art, and which the constitution vainly endeavours to hold out against and shake off." (p. 545.) It can scarcely be denied, however, that the peculiar form of irritative fever which is termed *hectic* occurs in that state of the system in which there is a tendency to the formation of pus if not an actual elaboration of it. We quite agree with Mr. Morgan that the opinion entertained by some of hectic fever being caused by the admixture of purulent matter with the mass of the blood, has no real foundation. But just as we observe a peculiar accumulation of fibrine in the blood, when there is a tendency to the effusion of coagulable lymph, so can we readily conceive that there may be some other morbid change in it favorable to the secretion of pus, and producing hectic fever, as the former does the ordinary constitutional irritation.

Ulceration is next discussed, and with considerable minuteness. The author labours to impress on his readers the necessity of making themselves acquainted with the characters of different kinds of ulcers, as their chief guide in their treatment, both general and local.

"Our skill in this branch of our art is manifested by the ability of selecting the proper remedies for each kind of sore coming under our notice, and varying these from time to time as may be required. Nothing is more striking than the rapid change which ensues, whether for better or worse, according as the measures which are employed are suitable or otherwise. In no other external disease are such a variety and change of applications necessary; and hence the extent to which the surgeon must draw upon his own ingenuity and information. As has justly been remarked, it is in the management of ill-conditioned sores and ulcers, whether of a simple or specific nature, that the daily and ordinary duties of the surgeon consist; and it is by his success in treating them that his skill in practice will be judged of by his employers. Out of twenty surgeons who can perform all the operations in surgery with the requisite dexterity you will not probably find more than one who can treat properly the ill-conditioned sores or ulcers in which even the wounds necessarily inflicted by operations sometimes terminate. We would fain hope that this ignorance is not now so prevalent." (p. 610.)

In this hope we cordially unite; for the condition of the legs of her Majesty's subjects must indeed be pitiable if so small a proportion of surgeons as Mr. Morgan hints at should be competent to give them effectual assistance. In his principles of treatment Mr. Morgan adopts a judicious medium between the exclusively *local* treatment which some rely on, and the exclusively *constitutional* which in the opinion of others is sufficiently effectual to render topical remedies of little avail, and minute shades of discrimination between the varieties of ulcers worse than useless. Mr. Morgan has not found the application of blisters over and around callous ulcers, as recommended by Mr. Syme, as efficacious as it appears to have proved in that gentleman's hands. This is the fate of all remedies. The proposer is invariably more successful than any of his followers. Sometimes this is due (we regret to be obliged to believe) to an intentional magnifying on his part of the success of his treatment; more often, we trust, this is done with complete unconsciousness; and in many cases—very probably in the one before us—it arises from the

acquirement by the originator of a perception of the cases in which his remedy is likely to prove beneficial, which he cannot communicate by a verbal description. We have ourselves witnessed all the good effects of this plan which Mr. Syme attributes to it; and yet M. Morgan speaks of it as producing excessive pain, and occasionally causing the most violent irritation and inflammation of the leg. We suspect that these must have been cases in which Mr. Syme would not have employed it.

The remainder of the volume is devoted to mortification; which subject is treated in the same full but lucid manner with those we have already noticed with approbation; especial pains being bestowed on the practical portion, upon which the bearing of the theoretical is, we regret to say, not yet very decided. It is evident that, keeping in view his great object of supplying the student and junior practitioner with a *practical* guide to this most important branch of the principles of surgery, he has here as elsewhere avoided lengthy discussions on controverted points, however abstractedly interesting; and in the wisdom of this course we fully concur with our author.

ART. XVI.

A System of Practical Surgery, with numerous explanatory plates and drawings after nature. By JOHN LIZARS, Professor of Surgery to the Royal College of Surgeons, and lately Senior Operating Surgeon to the Royal Infirmary of Edinburgh. Part II.—*Edinburgh*, 1839. 8vo, pp. 333.

IN a previous Number we called the attention of our readers to the first part of Mr. Lizars's "*System of Practical Surgery*," and we there expressed our opinion that the book was not of the character which should belong to a work bearing this title. We are happy to see that our observations have been followed by an improvement of some of the defects which were most prominent in the first part; but we are still under the disagreeable necessity of stating that, as a system of practical surgery, the second part can be regarded as in no respect superior to the former. We do not mean to say that there is not much valuable practical matter in this volume; and if this matter had been published in a less pretending form, it would have been not merely in stricter accordance with its claims to notice, but would have been more generally useful than it can be in its present shape. It contains some of the results of Mr. Lizars's own experience, which would have made a valuable paper for the Transactions of some Medico-Chirurgical Society, or might have passed through one or more editions in the form of a little independent volume, with a title corresponding in humility to the value of its contents.

That our present judgment may not appear to have been formed hastily or carelessly, we will here set down some of the remarks that we made in reading the chapters on the diseases of the eye, the ear, and the teeth: we might easily enlarge our evidence from most of the other parts of the volume.

"*Inflammation of the Eye, or Ophthalmia.* This affection has been divided and subdivided by some authors into so many varieties, that the student is perfectly perplexed. That affecting the tissues is the most fashionable, as conjunctivitis, corneitis, scleritis, choroiditis, retinitis, hyalitis, capsulitis, lenticitis, and aquo-capsulitis; and to render this catalogue complete, we have only to add aquitis, ciliaritis, vitreitis, uveitis, Ruyschitis, Monroitis, and Jacobitis. This catalogue I intend to reduce to four,—acute inflammation, chronic inflammation, purulent inflammation, and iritis; even the purulent might be described along with the acute ophthalmia." (p. 43.)

The account of the symptoms and treatment of acute ophthalmia which follows, is the best commentary which could be offered on the absurdity of what is here so flippantly inculcated; for sure we are, a student will never derive a single definite idea from such a jumble. If he tries to be guided by it, he will just as likely subject the patient labouring under a slight external ophthalmia to the energetic treatment necessary for an internal inflammation, and *vice versa*, as adopt what is proper for each case. When the diagnosis is undecided, the treatment will be always, at the best, undecided.

We consider it our duty strongly to protest and warn our younger readers against the proceedings recommended in the following extract, jumbled together as they are, and founded on indications so vaguely described:

"When the conjunctiva investing the eyelids is tumid and congested, it should be touched with the sulphate of copper or nitrate of silver, applying immediately after a slip of lint dipped in olive oil, and afterwards warm water for a day or two, then the rose water, and ultimately the zinc or silver collyrium. The crude copper (?) or silver (?) ought to be repeated oftener than once in the six days. *In children, this state of the conjunctiva leads to the eversion of the eyelids, particularly the upper, and thus named lagophthalmos.* This is to be treated in the same way, or with a glass rod, having a drop of nitric acid, swept along the conjunctiva palpebræ. This surface, when thus affected and neglected, ultimately degenerates into a granular state, especially in the scrofulous, and requires the same applications; but if not cured, the eyelids should be everted with a probe, [the eyelid has just been described as unnaturally everted,] and the granular surface paired off with an iris knife, or small scalpel, such as that used in the dissecting-room for tracing the nerves. If the eyeball has a full appearance, and seems to be keeping up the irritation, the cornea should be punctured with a needle in its lower aspect, to evacuate the aqueous humour, which instantly moderates the inflammation, by removing the tension." (p. 456.)

Any young practitioner taking this for judicious and trustworthy advice, and attempting to act up to it without any qualification, would make sad havoc among the eyes of his unhappy patients. We have put one sentence in the above extract in italics, as it gives what is certainly a new definition of lagophthalmos.

Mr. Lizars informs us (p. 47) that in purulent ophthalmia both eyes are commonly involved, especially when gonorrhœal matter has been applied. In this he is at issue with Mr. Lawrence, who says (*Treatise*, p. 224,) "In general, gonorrhœal ophthalmia attacks only one eye, while the purulent disease affects both;" and Dr. Mackenzie, who says (*Practical Treatise*, 2d ed., p. 438,) "in general, it is only one eye which is affected with this disease (gonorrhœal ophthalmia). Whenever

we see one eye affected with severe puro-mucous inflammation, the lids much swollen, and of a livid colour, and the discharge copious, without any affection of the other eye, we may suspect the case to be gonorrhœal." Dr. Vetch, speaking of the Egyptian ophthalmia, says, "there is not one case in a thousand in which one eye only becomes affected."

Mr. Lizars evidently jumbles together purulent ophthalmia, ophthalmia neonatorum, and gonorrhœal ophthalmia. The purulent ophthalmia of Mr. Lizars is said by him to be "in this country (Scotland) almost always produced by the application of gonorrhœal matter to the eye" (gonorrhœal ophthalmia). The experience of Dr. Mackenzie in Glasgow does not warrant the view that purulent ophthalmia, as it is commonly understood, and ophthalmia neonatorum are in Scotland always the result of gonorrhœal inoculation.

"*Iritis*. Inflammation of the iris is almost exclusively developed in the syphilitic constitution, like purulent ophthalmia in the gonorrhœal, the difference being, that gonorrhœal matter applied to the eye of an individual otherwise free from gonorrhœa, will excite purulent inflammation, while any exciting cause, as cold winds, will produce iritis in a patient labouring under syphilis." (p. 48.)

Though it is quite true that the syphilitic is a very common form of iritis, it is wrong to say it is the almost exclusive one. This one-sided view of Mr. Lizars strangely contrasts with the contrary but still more one-sided view of Mr. Hunter and Mr. Pearson.

"Whenever pus is detected in the anterior chamber it should be evacuated; and whenever there is any projection behind the iris, the sclerotic coat should be punctured." (p. 50.)

This is certainly rash and unwarranted practice as a general rule.

Mr. Lizars not only repeats the current but erroneous notion of the pathology of staphyloma, but even affects to describe the progress of its development. Arrest the progress of *staphyloma* by the administration of Fowler's solution! This is an example of the vagueness of Mr. Lizars's pathology and therapeutics of the eye.

"Closure of the pupil. This supervenes to either common ophthalmia, syphilitic iritis, or adhesion of the iris to the cornea, which last is named synechia. In these cases lymph is effused, which prevents the rays of light from passing through the pupil, and the forming an artificial pupil now becomes a question." (pp. 56-7.)

Such is Mr. Lizars's luminous account of closure of the pupil, and his only indication for the operation of forming an artificial pupil. In conformity with such a contracted view of the subject, the only operation he describes is that by incision. In regard to the other modes of operating, he merely says:

"There are also excision, or corectomia, or iridectomy, and separation, or credialysis, or iridodialysis, with numerous modifications of each of the three, and innumerable instruments, which I deem it unnecessary to describe." (pp. 57-8.)

Mr. L. ought to have stated, for the benefit of his young readers, that the different modes of forming an artificial pupil are each adapted to par-

ticular morbid states of the eye, and that one cannot be always adopted instead of another.

But the operation recommended by Mr. Lizars that by incision, he has incorrectly described and figured. It is clear that he is quite ignorant of the principle of the operation by incision, when he says the operator must be careful not to wound "even the capsule of the lens." The operation in fact *cannot* be done without wounding the lens—no operator ever attempts it, so that breaking up or depressing the lens, if this is present, is in general a part of the operation. Sir W. Adams, who revived the operation, thought the cause of his success was his plan of putting a piece of the broken lens between the lips of the incision in the iris, and thus preventing reunion. The frequent failure of the operation in the hands of others he attributed to the neglect of such a precaution. But Sir W. Adams was wrong. The operation only succeeds in those cases in which the iris still retains its natural texture, and is capable of contracting, so that when cut the incision gapes open and continues so.

When the operator has reason to suppose that both lens and capsule are transparent he will choose another mode of operating.

Mr. Lizars's figure (plate viii. fig. 10,) gives quite a wrong idea of the operation, and is altogether unlike that of Cheselden in the *Philosophical Transactions*.

The operation of making an artificial pupil by incision of the iris cannot be said to be "unquestionably the best," as Mr. Lizars affirms it is. The cases adapted for it (cases in which the natural structure of the iris has not been changed by inflammation), not having been always properly known, the operation has failed so often that the German surgeons appear to have discarded it altogether—speaking of it in their works merely in an historical point of view—though certainly unjustly. In cases adapted for it we consider it unquestionably the best and simplest operation, provided the surgeon knows the principle of it and knows how to perform it—not attempting to do what cannot be done, i. e., to avoid wounding "even the capsule of the lens."

"*Operation of Extraction of the Lens.*" Having made the section of the cornea, the operator, says Mr. L. (p. 63), "then elevates the cornea with a pair of ordinary dissecting forceps, and next scratches the capsule with a needle or curette," &c. To elevate the cornea with a pair of ordinary dissecting forceps is surely most rude surgery. What necessity is there for elevating the cornea at all? The instrument for lacerating the capsule can be readily enough insinuated under the flap of the cornea.

The case of hydatid in the anterior chamber referred to by Mr. Lizars, p. 73, (and which in his careless manner he terms *cysticercus cellulosus*, and classes among the *entozoa*,) appears to be the same as that described and figured by Mackenzie. Mr. Lizars's figure of the eye (plate viii. fig. 8,) is not very intelligible; it certainly was not drawn from nature.

"The cornea is sometimes too convex, named *myopia*, at others too flat, hence there are short-sighted and far-sighted people, who use concave and convex shaped lenses to remedy the defect. One eye, however, has been affected [how affected—the cornea too convex or too flat?] and it has become prominently conical," &c. (p. 74.)

Surely Mr. Lizars does not mean that any slight increase of convexity which may exist in a myopic eye is an early stage of conical cornea.

The following is an instance of the disregard of accurate language which we had occasion to reprehend in Mr. Lizars's former volume, and which we regret to see still so prevalent in the present: "The iris is sometimes deficient, while in *others* [?] there is a rudimental process, generally at the inferior margin of the ciliary processes; all of *whom* [the ciliary processes?] have indifferent vision, some being nearly blind." (p. 75.)

We shall not proceed further with our notice of this chapter on the Diseases of the Eye; it is, however, but just to remark that the part on the diseases of the lachrymal organs is better than the rest.

If we were to extend our remarks to some other chapters in the work, we fear we must adopt the same strain of criticism, however disagreeable it might be to us to do so. Thus in the chapter on Diseases of the Ear we find the individual subjects in no respect more clearly or scientifically discussed. A student reading this chapter would, in fact, be led to suppose that, instead of the diagnosis of the diseases of the ear being somewhat obscure, and the diseases themselves not always very amenable to treatment, the former always is readily to be made, and the cure forthwith accomplished.

In the chapter on the Diseases of the Teeth, again, we have an equally marked specimen of the flippant dogmatism, careless language, and indefinite views which unfortunately characterize, more or less, the whole work. Indeed, we are once more compelled to say that few parts of the volume indicate on the part of the writer that precision of ideas on the subjects treated of which alone qualifies for the difficult task of efficiently communicating instruction to others. We have, however, no doubt but that Mr. Lizars wields his surgical instruments to much more effect than he does his pen, and we are sure his patients derive more advantage from the former than his readers are likely to do from the latter.

We shall conclude our notice of Mr. Lizars's "System" with the following quotation from a quaint old book—*The Art of Healing*, by THOMAS MARRYAT, M.D.:

"It is a trite but just observation, that those who are most dogmatical are most apt to be erroneous. Self-importance has a mighty bad effect on the eyes, and wonderfully impairs their visual power. Of this the author begs leave to deliver the following instance; in the year 1756, having made (in his own opinion) a momentous discovery, he gave it to the public with a most imperious and dictatorial air of self-consequence, under the title of Medical Aphorisms. The authors of the Monthly Review, piqued to see the public so cavalierly treated, applied a critical vesicatory with such propriety, as entirely to evacuate the peccant humour, and (beyond their own expectations) to effectuate a perfect cure. Would to Heaven that every author who falls under their castigatory pen would make the same use that he did of the well-meant hints of those ingenious and never-enough-to-be-applauded writers, instead of snarling at the rod, or impotently snapping at the kind hand that holds it."

ART. XVII.

Supplement to the Introduction to the Atomic Theory; comprehending a Sketch of certain Opinions and Discoveries bearing upon the general Principles of Chemical Philosophy, which have been brought into notice since the publication of that work. Prefaced by some Remarks on the projected Reforms in Academical Education. By CHARLES DAUBENY, M.D. F.R.S. &c. &c. Professor of Chemistry and Botany in the University of Oxford.—London, 1840. 8vo, pp. 62.

OUR present notice of Dr. Daubeny's most excellent and interesting pamphlet will be confined to the prefatory remarks, which so completely harmonize with the views we have recently expressed in our articles on education, that we cannot deny ourselves the pleasure of sanctioning these by the weight of Dr. Daubeny's authority. In our next Number, we shall employ his sketch of opinions and discoveries, as the basis of a general review of the present state and prospects of chemical philosophy.

"He must indeed be blind to the signs of the times," says Dr. Daubeny, "as well as to the current of academical feeling, who does not anticipate that the period is approaching, at which the system pursued at this university (Oxford), will undergo some considerable modification. There is, indeed, no predicting how long a time it may require to surmount the practical difficulties which serve to arrest the movement; but . . . I cannot but feel convinced that the demand existing amongst all classes for that description of knowledge which involves some acquaintance with the truths of physical science, will, sooner or later, react upon the university, and impart a new character to the studies of those whom she sends forth to answer the urgent call for national instruction. Already this tendency of the public mind has begun to manifest itself here, by the measures for the encouragement of professional lectures which have been submitted to convocation, and which are known to have been rejected by that body, only on the alleged ground of the insufficiency of the proposed scheme to effect the desired end." (Preface, p. vii.)

We shall, indeed, rejoice when the gigantic means and influence of this noble university are employed more in accordance with the spirit of the age, and consequently with more benefit to the British public than at present. We do not go so far as to assert (with some) that the universities ought to *lead* rather than to *follow* in the path of educational improvement; for, considering the irreparable evils which would result from any false move when made on a scale of such magnitude, we think that it is the duty of those who govern those institutions, to adopt no step that is not sanctioned by experience. But it is equally their duty not to lag too far in the rear; and not to persist in compelling the student of the nineteenth century to pass through a course of education framed upon the model of the sixteenth. We are satisfied that, by admitting into their curriculum those branches of knowledge of which every man who mixes with the world now feels the want, the cause of unpopularity (whose value we by no means wish to depreciate) will be removed; for there will always (such is the variety of tastes in the land) be found enough to pursue it from choice; and the cause of those who now devote themselves to it from temporary emulation at it under compulsion, will be no real loss. In the following remarks on the relative value to the student of different

branches of scientific knowledge, our principle of advancing from the *general* to the *special* will be at once recognized :

"It is too much the custom, even amongst the advocates of modern science, to regard its several departments as if they were placed on the same relative level, considering them all indeed as deserving the attention of men of education.—but all as equally belonging to the superstructure, of which classical learning alone is to supply the foundation. Of the utility of the latter, as constituting an essential part of primary education, I wish not to express a doubt; but I am at the same time of opinion, that the above-mentioned mode of considering the physical sciences has weakened the cause of those who advocate an extension of our system; and, instead of tending to advance in public estimation any one of its departments, has lowered them all to the same standard as that which the least important of their number is conceived to occupy. It is quite true indeed that there is no one branch of knowledge taught in this university, to which the attention of the student might not profitably be directed, or which if cultivated in a proper spirit, would not tend to enlarge the range of his ideas and to increase the sphere of his utility. But there is still, I humbly conceive, a distinction to be made in favour of those studies, which constitute the grammar to every other kind of natural knowledge, and without some acquaintance with which the student must be content to remain in the same state of ignorance, as to the causes of the commonest phenomena of the material world, which he would experience with respect to the moral if destitute of the ordinary rudiments of scholarship. In such a predicament that individual must feel himself, however high his attainments in other respects may be, who enters the world profoundly ignorant of the great physical and chemical laws of matter—that is, of the nature of those forces which operate on all bodies whatsoever, and of those distinctive properties, which characterize the substances most familiar to him, and most subservient to the common purposes of life." (Preface, p. x.)

Dr. Daubeny then goes on to argue that, though particular branches of scientific knowledge may have their special use in after-life,—as, for instance, natural history to the country clergyman, or modern history or political economy to the legislator, or the principles of jurisprudence to the country magistrate,—these studies are entered upon under a great disadvantage, without such previous attention to the *most general* branches of knowledge, as shall have afforded useful preliminary information, and shall have counteracted "that narrowness of mind which is apt to be engendered by an exclusive addiction to one particular line of studies."

"I do not then assert," continues Dr. Daubeny, "that mechanical or chemical philosophy hold in themselves a higher place than any of the above-mentioned studies, but I would merely suggest that such a knowledge of either as is requisite for duly comprehending the truths of other natural sciences—such a degree of elementary information respecting them as is assumed in the very explanations offered of the leading phenomena of the latter, ought to have a prior claim to the attention of the student, and be ranked rather as *parts of the foundation* of a liberal education, than as studies which may be advantageously ingrafted upon it." (p. xii.)

With this last opinion we most heartily coincide; and it gives us the most sincere pleasure to meet with it in the writings of an Oxford professor, and to learn from him that he is not solitary in his feeling on the subject, and that there is even a faint probability of a speedy improvement.

ART. XVIII.

Observations on the Diseases incident to Pregnancy and Childbed.

By FLEETWOOD CHURCHILL, M.D. &c.—London, 1840. 8vo, pp. 455.

ALTHOUGH we would not award to the best compilation the same meed of approbation that we would bestow upon a work of originality, we are inclined to regard the labours of an able compiler with much more respect than is by many thought to be his due. No man can make a good compilation who does not possess a perfect knowledge of the subject; a perspicuous style of writing; the tact of discriminating fact from fancy; and, lastly, the talent, which belongs to few, of patient and sustained industry. On the other hand, we confess, that we are inclined to measure out our praise with a sparing hand, to him who throws together the heterogeneous opinions of conflicting writers; but who, either from the consciousness of incapacity, or the dread of the labour which the task demands, omits to give a condensed and clear statement of the sum and substance of the best opinions up to the time he writes. The work before us is evidently, and indeed confessedly, a compilation, and we cannot assign to it the first rank among works of this sort. Every page shows the number of works which the author has consulted, but the materials derived from them are not, we think, always judiciously employed. We object to the custom of loading almost every page with numerous references to various authors, merely for the purpose of extracting commonplace statements, which are to be found in every elementary work, and which the writers never could have thought of claiming as their peculiar property. Dr. Churchill's book would, in our opinion, have been much more agreeable to read if he had avoided this fault; if he had made less show of research, and had confined his foot notes to the original opinions of the authors he quotes, and had given in his own language a condensed and unbroken statement of practical facts, that are established beyond dispute, and which every writer upon the same subject admits and states. If Dr. Churchill had adopted this plan, his very numerous foot notes would have been greatly diminished in number, but the well-instructed reader would not so frequently have had the question obtrude itself, of "why a foot note," to reiterate a statement in the text, and to refer to an individual authority for an opinion, which is to be found in almost every writer upon the subject during the last century.

Although, however, we cannot approve of the arrangement of this work, we freely and with pleasure admit that it contains a great deal of practical information on the diseases of pregnancy and childbed, which the student will peruse with advantage, and which certainly cannot be found in any one English work on the same subject. To those, too, who are inclined to "read up" the best opinions upon these practically important topics, the various and well-selected authorities from French, German, and English writers, quoted by Dr. Churchill, will be found very useful in lightening the labour of literary research.

PART SECOND.

Bibliographical Notices.

ART. I.—*Vital Dynamics; the Hunterian Oration before the Royal College of Surgeons in London, 14th February, 1840.* By JOSEPH HENRY GREEN, F.R.S., &c. 8vo, pp. 135.

"Notwithstanding the favorable testimony of friends, on whose judgment I rely," says our author, by way of preface, "to the success of the oration which I now offer to the candid and impartial criticism of those engaged in scientific pursuits, I shall neither be surprised nor offended if it should appear that some of my auditors deemed it unsuited to the occasion on which it was delivered, or that many of my readers consider it unsuited to any occasion." We have the less hesitation, therefore, in expressing our candid opinion upon the production. The following additional extract from the preface will explain the purpose of the orator: "I will not conceal from my readers that I have had an ulterior object in the following address, and, in addition to its purpose, in connexion with the attention of the founders of the Hunterian Oration, of vindicating the original merit of John Hunter as a philosophical physiologist, that it was composed with a view to the larger design, to which his labours most importantly contributed, of reconciling the study of nature with the requirements of our moral being, and of connecting science, which even as the noblest offsprings of our intellect is but a fragment of our humanity, with the philosophy of Coleridge, which, as far as my knowledge extends, preeminently, if not alone, gives life and reality to metaphysical pursuits, by showing their birth, growth, and requisite foundation in the whole man, head and heart." (p. xx.)

We are by no means inclined to deny that a clear notion of the powers of the human mind, and of the best means of bringing them to bear upon the investigation of truth, forms a most excellent preparation for the pursuit of any branch of scientific enquiry; but we think that the experience of ages has shown that between the higher branches of physics and metaphysics there is but little *practical*, however much *abstract* connexion; and that the greatest and most successful of physical philosophers have been led to their discoveries by the study of external nature only, and not by abstract meditation on the nature of ideas. We quite agree with Mr. Green that the discovery of a *law* is something very different from the mere generalization of phenomena, but any one who retraces the history of science will at once perceive that the most likely means of discovering the law is to collect and meditate on the phenomena. Did Hunter, in his search for the laws of life, sit down to the study of Plato's doctrine of ideas? Was it not rather his chief glory that he aimed to collect

phenomena from every source he could devise, as materials for induction, and that he perceived that no laws could be secure that were not based on the widest possible foundation?

We cannot but think that Mr. Green's notions on the subject are themselves a little vague; they certainly appear so from the phraseology in which they are dressed. He tells us that "It was the peculiar and eminent merit of John Hunter that he had raised his mind to the apprehension of life as a law, in aid of a science of vital dynamics, and as the means of giving scientific unity to the facts of living nature." "In that very conception of a law, he taught us that life is a power anterior in the order of thought to the organization, which it animates, sustains, and repairs, a power originaive and constructive of the organization in which it continues to manifest itself in all the forms and functions of animated being. This great idea never ceased to work in him as his genius and governing spirit." Now we should no more think of calling *LIFE a law*, than we should of calling physics or chemistry *laws*. They are comprehensive expressions of series of phenomena, governed by *laws*, but not as yet reducible to any *single* principle. Until it is so, we cannot see that we can think of life under any other aspect. The sense in which our author uses the term *idea* is also peculiar; but as he traces it to the high authority of Plato and Coleridge, we must not presume to question it. He seems to us, however, to make their abstractions yet more mystical. "That which contemplated objectively, (that is, as existing externally to the mind,)" says the last of these metaphysicians, "we call a law; the same contemplated subjectively, (that is, as existing in a subject or mind,) is an idea." Both laws and ideas, however, are represented by our author as having a *separate existence*, distinct alike from the phenomena to which they refer, and from the mind which conceives them. "We may describe an idea," says Mr. Green, (Preface, p. xxv.) "as a causative principle, combining both power and intelligence, containing, predetermining, and producing its actual result in all its manifold relations, in reference to a final purpose; and realized in a whole of parts, in which the idea, as the constitutive energy, is evolved and set forth in its unity, totality, finality, and permanent efficiency." How far such an exposition of such a doctrine was a fit subject for a Hunterian oration, our readers may judge for themselves. That the composition indicates great learning and deep thought is only saying what the attainments and talents of the author might have given reason to expect. And we should not do him justice were we not to quote some passages from it, which shall give a more favorable impression of its character than that which our readers may have derived from our previous remarks. Alluding at his commencement to the frequency with which Hunter's merits have been set forth, by which, in the opinion of some, the materials for eulogy have been exhausted, he continues:

"The discoveries of science, the triumphs of genius, the revelation of truth, seem to partake of the permanent being which is their source; they are perennial, living growths, which ever put forth anew their foliage, blossom, and golden fruit; and we collect from year to year the harvest, that owes its birth to the divine seeds of wisdom, which the gifted individuals of our race have been permitted to plant, which have been watered by the dews of heaven, and have been fostered by the light and genial

warmth of a sun that sheds on them the blessing of providence." (p. 4.) Again, "If our praise is to be discriminative and appropriate to the occasion, we must essay in the humble hope of some inspiration of the same power, to scan the genius which animated and directed his bold, original, and profound researches, and to trace with kindred spirit the mind of him who conceived, planned, and in a great measure constructed (what yet indeed remains to be fully achieved) the mighty work of a philosophy and science of life and living being." (p. 5.) To our minds there is much beauty in the following passage, expressive of the pleasure derived from the contemplation of the higher laws of nature. "It is by virtue of this reason that we hear the voice and legislative words of the Creator sounding through the universe; and it is in the sabbath stillness of our intellectual being, when the busy hum of the world is hushed, that the strains of this divine music penetrate the soul attuned by meditation to move responsive to its harmony." (p. 21.)

Besides the oration, which only occupies about fifty pages of the volume, we have an Appendix containing a series of short essays, on the "Evolution of the Idea of Power," "Transcendental Anatomy," "Gradation of Animal Life," "Characteristics of Man's Bodily Frame," "Hunter's Pathology," "Instinct," and the "Recapitulatory Lecture" of the author's former Hunterian course. These will be read by many with more interest than the oration itself.

ART. II.—*The Anatomist's Vade Mecum: a system of Human Anatomy.*

By W. J. ERASMUS WILSON. *With upwards of 150 Illustrations,*
by Boys.—London, 1840. 8vo, pp. 551.

THIS is probably the prettiest medical book ever published, and we believe its intrinsic merits are in keeping with its exterior advantages. By means of a small but most distinct type, set off by the smoothness and whiteness of the paper, the author has contrived to compress into one small volume a complete system of descriptive anatomy, "recording" as is justly stated in the preface, "in a clear, precise, and perspicuous style, every important detail of human structure, and the most modern and valuable discoveries and researches in the science of anatomy." It is only by perusal that one can be made to believe that in a space so small, the details can be given fully and completely. This, however, is the case; and when we find that all the verbal descriptions are again presented to the mind, through the eye, by the innumerable woodcuts so profusely scattered throughout the volume, we are compelled to admit that the *Vade Mecum* of Mr. Wilson is not only the best and most beautiful of the works of its class, but is the very *beau ideal* of what such a work for the student should be. We do not pretend to have read this volume, further than to satisfy ourselves as to its literary character, by dipping into its pages here and there; but we have examined it sufficiently to satisfy us that it may be recommended to the student as no less distinguished by its accuracy and clearness of description, than by its typographical elegance. The woodcuts are exquisite.

ART. III.—*Practical Observations on Abortion.* By J. S. STREETER, Member of the Royal College of Surgeons, &c. *Plates.*—London, 1840. 8vo, pp. 70.

THE author first presented an essay on the subject named in the title-page to the Westminster Medical Society, "on such a wide physiological and pathological basis as he believes can alone lead to judicious measures for the prevention of abortion in future pregnancy, and to the best mode of treatment when the present symptoms proclaim that it must inevitably occur."

"Friends on whose judgment he could rely," advised him to print his essay, and hence the publication before us. The advice was flattering, and compliance followed almost as a matter of course. Mr. Streeter's chief object is, "to direct attention to the impossibility of laying down rules for the prevention of miscarriage in any subsequent pregnancy without first determining from accurate observation, and competent knowledge of embryology, the normal or pathological condition of the aborted ovum, and hereby arriving at the real cause of miscarriage."

We are by no means inclined to regard an enquiry into the conditions of aborted ova as useless or superfluous. The subject is interesting in many points of view, and as at present little more is known than that ova when expelled from the uterus present very various appearances, it is very desirable that they who have the requisite talent and opportunities for entering into such investigations should endeavour to advance our knowledge upon the subject. But we do not perceive how the inspection of an ovum thrown off during one pregnancy can lead us to a knowledge of the best mode of preventing future miscarriage. When women abort several times, the different ova rarely present the same appearances, and therefore a practical guide can seldom be obtained for the prevention of future abortion, by the examination of one of the ova previously expelled. In the majority of cases too we cannot determine whether miscarriage has taken place from a cause operating primarily upon the mother, or upon the ovum itself. We admit exceptions to this general rule; and we admit also that an attentive practitioner may occasionally presume that abortion is threatened from some cause operating upon the mother generally, or upon the uterus especially, and that sometimes too we may suspect the ovum is either degenerated or diseased. But not even with the help of the "wide physiological and pathological basis" of Mr. Streeter, which in sober truth is extremely narrow, can we form any positive opinions upon the subject in the great majority of cases, which can modify our practice. Mr. Streeter's remarks on the treatment of abortion prove the truth of this statement, for they contain nothing more than a very slight, and by no means well-arranged sketch of the mode of treating abortion, which is to be found in every elementary work. We cannot then congratulate Mr. Streeter, at present, upon having advanced our knowledge of the subject of abortion, by his examinations of the "blighted embryonic thing." As he is evidently however an observant and industrious practitioner, we do not despair of his making out a stronger case if he pursue his enquiries.

ART. IV.—*An Essay on the Treatment and Cure of Pulmonary Consumption, on principles natural, rational, and successful: with suggestions for an improved plan of treatment of the disease among the lower classes of society; and a relation of several successive cases restored from the last stage of consumption to a good state of health.* By GEORGE BODDINGTON, Surgeon.—London, 1840. 12mo, pp. 60.

If this lengthy and ingenious title-page is calculated to excite painful suspicions in the mind of the experienced reader, as to the nature of the work and the object of the author, the perusal of the book itself most assuredly will not allay them. It is, in fact, an elaborate advertisement to make known to all concerned, that the author has "taken a large house near his own residence, for the reception of patients," &c. &c. (Introd. p. viii.) To this house and to its renter's care the author is desirous that the medical gentlemen of large towns "should confide their consumptive patients, instead of sending them, as many now do, to take their chance, or probably to fall into the hands of mercenaries [!] at some distant seaport where they commonly die, far away from friends and home." (p. 45.) We will only say further of this book, that it is consolatory to know, after knowing its object, that it betrays an utter ignorance of pathology, of therapeutics, and of the English language. We will not give the name of Mr. Boddington's abode, for fear we should be charged advertisement duty for this notice of his book.

ART. V.—*Forhandlingar vid det af Skandinaviska Naturforskare och Läkare Hållna möte i Gotheborg.* År 1839.—Gotheborg, 1840. 8vo, pp. 188.

Transactions of the Scandinavian Society of Naturalists and Physicians held at Gottenburg, in the year 1839.—Gottenburg, 1840.

THIS little volume, written in the Swedish language, gives an account of the meeting of savans at Gottenburg in July, 1839. It was attended by ninety-two members, who resolved themselves into sections of physics, natural history, and medicine, the latter of which consisted of forty-eight members, of whom Professor Holst, of Christiania, was president. Although this was the most considerable section of the meeting, little was done in it; indeed the whole seems to have been more distinguished for kindly feelings and good fellowship, than for severer and scientific proceedings.

Professor Eschricht, of Copenhagen, read a paper upon the origin of Entozoa. He was opposed to the opinion that these are primarily generated, not from ova at all, properly so called, but spontaneously in each organ of the animals in which they are found. He supported his views chiefly by the fact of each entozoon possessing proper organs of generation.

Dr. Sommer, of Copenhagen, read a paper upon the classification of diseases of the skin, in which he proposed to rearrange them into twelve natural groups, viz.:

1, *Dermatoses exanthematicæ*; 2, *D. erysipelacæ*; 3, *D. eczematosæ*; 4, *D. impetiginosæ*; 5, *D. scabiosæ*; 6, *D. papuliformes*; 7, *D. squamosæ*;

8, D. folliculosæ; 9, D. favosæ; 10, D. cancrøsæ et cancroïdæs; 11, D. leprosæ; 12, D. syphiliticæ.

Dr. Cederschjold, of Stockholm, read a paper upon the position of the head of the child in utero; and Dr. Egeberg, of Christiania, related some cases in which he had performed the Stromeyerian operation. These are the chief subjects relating to medicine which were discussed—that by Dr. Sommer at considerable length.

There was a feature in this meeting quite novel and hitherto unheard of at similar reunions; and Heaven forefend that it should be otherwise in future. A Latin poem was recited! It defies translation; and it would almost seem as if each Professor, Lector, and Doctor, had furnished a line:—who was the Laureat does not appear. In the first stanza the dangers of the sea cannot separate the sons of science. In the next, the assembled conclave are the princes of the republic of letters, as Rome had once a senate of kings. In the third, they will keep the eternal fire alive; and the world, enlightened by them, will never be in darkness. In the fourth, they unite discordant nations; and the language of each is no longer foreign to their ears. And lastly, but not least, Gottenburg is the first city to witness the phenomenon; and the first also to pray to God to prosper the attempt.

ART. VI.—*Microscopic Illustrations of Living Objects; with Researches concerning the Construction of Microscopes and Instructions for using them.* By C. R. GORING, M.D. *A New Edition, emended and enlarged.* By A. PRITCHARD, M.R.S. &c.—London, 1840. 8vo. pp. 248.

Now that microscopic investigations are obtaining so much attention by the profession, we are glad to observe that the above interesting and important work, although increased considerably in size, has been reduced to less than one half its original price. The work is a strictly practical one, written by practical men, and the present edition brings the subject down to the present time. We recommend it to the attention of our readers.

ART. VII.—*A practical Essay on the Disease generally known under the denomination of Delirium Tremens; written principally with a view to elucidate its division into distinct stages, and to simplify its method of cure.* By ANDREW BLAKE, M.D., Physician to the Notting-ham Lunatic Asylum, &c. Second edition, revised and much enlarged.—London, 1840. 8vo, pp. 112.

WE entered so fully into the subject of this work in our Twelfth Number, (Vol. VI., p. 320,) that we deem it unnecessary to notice at any length the excellent Essay of Dr. Blake. It is but justice to him, however, to state that his work, in its present much improved form, is by far the best monograph we possess on the subject, and well deserves the attention of every practitioner whose personal experience has not prepared him to treat with confidence this dangerous malady. In Dr. Blake he will find an experienced and faithful guide, whom he may safely follow, although he may find the path occasionally a little obscure and circuitous.

PART THIRD.

Selections from the British and Foreign Journals.

I. THE FOREIGN JOURNALS.

ANATOMY AND PHYSIOLOGY.

On the Contractility of the Blood-vessels. By Dr. HENLE, of Berlin.

THE object of the author in the present paper is to offer anatomical evidence in favour of the views respecting the nature of inflammation which he expressed in his "Pathological Investigations," and of which we gave a full analysis in our Number for April last. He now, in support of those opinions, advances that the structure of the middle coat of the artery is intermediate between cellular and muscular tissue; and that the vessels must therefore be liable to those changes of caliber under the direct or sympathetic influence of the nerves to which he believes that inflammation is due. With reference to his conclusions we can only repeat the opinion given in the review already mentioned, that mere dilatation of blood-vessels is not inflammation, and that even if it were proved that depression of the supposed motor nerves of the blood-vessels could result as an antagonist phenomenon of the excitement of the sensitive nerves, this would constitute but one and not the most important part of inflammation. However, the present anatomical observations of the author are not much the less interesting because he makes them the groundwork of incorrect pathology; if true, they afford additional proof, and indeed the only evidence that was wanting, to establish that the blood-vessels are subject to changes of their caliber under other than mere physical influences. And it is but fair that this evidence should be supplied from the school of Müller, who has done so much to throw discredit on the opinions of those who regarded the fact as already reasonably demonstrated.

The microscopic elements of the middle coat of the artery are broad and very flat slightly granulated fibres or bands, which lie in rings around the internal membrane. In the innermost layers they readily break up into tolerably similar long rhombic lamellæ, which are much like flattened cuticle cells, but are longer in proportion to their breadth. Of these lamellæ some are quite homogeneous, others present at one part a dark oval spot of the form of the common nuclei of cells which lies with its greatest diameter in the long axis of the lamella; and, lastly, on others this spot is drawn out into a longer and fine dark streak which often extends over the whole lamella but often over only a part of it, and often is replaced by a row of small dark points.

In the more external layers the lamellæ unite into long, and very seldom if ever branched fibres; the dark streaks also become connected together, not only joining with one another by their ends, but at the same time sending off lateral branches by which they anastomose. Thus the middle coat of the artery consists of numerous layers of granulated transverse bands (of 0.003 lines diameter), and of a system or network of dark streaks among them. These have some resemblance to elastic fibres, and have given rise to the opinion that this

coat consists of elastic tissue. But a true elastic coat exists only on the larger arteries external to the middle one. The granulated bands of the middle coat dissolve in acetic acid, the dark branched streaks do not, and they may therefore by its means be easily demonstrated.

In the larger veins there is an exactly similar layer of transverse fibres next to the inner coat; but it is always very thin and may be entirely absent. (In the inner coat of the veins, however, a longitudinal layer of such fibres, which is much thinner or absent in the arteries, is in general considerably developed.) If one follows these fibres outwards it is seen how, though at first they were straight and stiff, they gradually assume the peculiar waviness of fasciculi of cellular tissue, and how at last there appears in them an obscure and then a more and more evident breaking up into separate parallel and tortuous filaments; for each granulated flat fibre there is a fasciculus of cellular tissue. The dark streaks on these fasciculi at first form a network like that which they present on the granulated fibres of the middle arterial coat; gradually they become finer and more translucent, the lateral branches fade, and nothing is seen but dark and very large wavy fibres, such as universally occur between the fasciculi of cellular tissue. These fasciculi become pale and dissolve in acetic acid; the fibres remain.

If the muscular coat of the stomach or of the intestine be examined successively from the serous to the mucous membrane, there are found externally lamellæ similar to those in the innermost layers of the middle arterial coat, with the same nuclei and the same development of the nuclei into streaks. Towards the mucous membrane the laminae coalesce into broad fibres, the well-known organic muscular fibres which in their microscopic and chemical characters agree with the fibres of the middle coat of the artery, but which frequently exhibit obscure divisions into finer parallel fibres. The dark streaks are much finer, fewer, less branched, and more similar to the fine interstitial fibres of the cellular fasciculi just mentioned. The so-called muscular fibres of the stomach and intestines then correspond to the *fasciculi* of the cellular tissue and of the striated muscles.

I have not yet, says Dr. Henle, traced the transition from the organic muscular fibres to the striated muscular fasciculi, and I shall merely mention that in the latter also the system of dark interstitial fibres insoluble in acetic acid occurs sometimes in the form of nuclei, sometimes of longer streaks, and sometimes of extremely fine wavy fibres. It is well known that the organic and striated muscular fasciculi dissolve in acetic acid. The chemical difference between the middle coat of the artery and the muscles is explained by the predominant quantity of interstitial fibres in the former. The anatomical identity of the above-mentioned tissues in all essential points is thus, I believe, demonstrated: with the less essential anatomical differences there correspond differences of functions. The striated muscles are generally subject to the will and react on mechanical and electric stimuli, but not on the application of cold; the heart is an exception, having striated fasciculi but not being voluntarily moveable; the organic muscles react as the striated do, but are removed from the influence of the will; the middle coat of the artery is anatomically similar to the organic muscular membrane, it is, like them, involuntary, it reacts, like them, on mechanical stimuli, and also on the application of cold, but not of electricity; the contractile cellular tissues, for example, the tunica dartos, similarly involuntary, has the same relations to cold as the middle coat of the artery, but is not excited to contraction by mechanical impressions. In the animal muscles contraction following upon irritation is sudden and single; in the heart sudden and peristaltic; in the intestine slow and peristaltic; in the arteries and the cellular tissue slow and continuous.

The contractility of the larger arteries is proved by experiment, and we may venture to ascribe it to the smaller ones as far as they agree in structure with the larger, that is, so far as the layer of circular fibres is continued. Now this may be recognized on vessels of from 0.015 to 0.02 of a line in diameter by rea-

dering them transparent with acetic acid and examining them under the microscope. The interstitial dark streaks are then seen running straight or somewhat obliquely round the vessel, at distances from each other which are equal to the breadth of a granulated fibre, in single layers on the small and in numerous layers on the large vessels. Separate fibres may also be exhibited on arteries of this size by tearing them. In smaller arteries, however, this is not possible; but even on those of 0·007 of a line in diameter (including their walls) there may be seen over the epithelium a layer of transverse, oval, and in part very elongated nuclei, which may be recognized as the origins of the dark interstitial fibres of the middle coat, by the circumstance that there is a gradual transition to the form of the latter, and that they already lie at the same distance from one another. Between them, therefore, the same substance must exist as between the interstitial fibres of the middle coat of the larger arteries, though it is not yet arranged in separate circular fibres. In vessels of this degree of minuteness the distinctions between arteries and veins are no longer to be discerned. Capillaries of less than 0·007 diameter (the smallest are from 0·002 to 0·003) have indeed separate transverse oval nuclei, but they have no special middle coat. The smallest consist only of a thin quite structureless membrane, in which oval nuclei lie here and there in a longitudinal position: those that are something larger have an epithelium of nuclei within this structureless primary membrane.....

For the opinion that the contraction of the membrane of the vessels, like that of the muscles, is under the influence of the nerves, I can adduce an anatomical fact. Purkinje has seen fine nervous twigs on the cerebral vessels of sheep; and Valentin both on them and on many other blood-vessels; and I have myself often observed nervous filaments presenting the character of the so-called organic fibres on small vessels such as one can see undissected with powerful lenses. On a vessel of the pia mater of one fifth of a line in diameter I saw such a nervous fasciculus (of 0·009 of a line in diameter) ascending to the upper wall of the vessel which was turned towards the eye, then turning round it to its posterior wall, and then continuing its course in the same direction. I have seen this winding of the nerves round the vessels only on very small portions of the latter, but I have observed it so often that I cannot regard it as an accident. In one case a smaller fasciculus was given off; it consisted of only three or four fibres and passed along the vessel.

Casper's Wochenschrift. Mai 23, 1840.

On the Alterations which Nervous Fibres undergo after Division.

By Professor NASSE, of Marburg.

THE results of the lengthened investigations which form the subject of this paper may be briefly stated.

In frogs, the natural average thickness of the filaments of the ischiatic nerve is 0·000416 inch; the majority are much smaller: the filaments of the posterior tibial are of about the same size; those of the brachial rather less, viz., 0·0003835. The smallest size observed was 0·00027 or 0·00028, and this was so common that the author is inclined to believe it to be the true diameter of all filaments unaltered by external influences, or at least of one kind of them. The limits of size were 0·00027 and 0·00045.

The filaments above the division, after it has healed (and usually about five months after the operation), are almost constantly larger than those below it. The average increase of size is 0·00005 to 0·00006.

The average size of the filaments which are paralyzed by the division is but little different from that of health; many months after the operation they are found only a little smaller. Their decrease in size is greatest when the animal is generally much emaciated; and is greatest of all when the main artery of the limb is divided at the same time as the nerve.

After destroying the connexion of a nerve with the spinal cord, its filaments first lose their cylindrical appearance, and from wrinkling acquire a transversely striated appearance, so that they seem to be divided into a number of short pieces. Next, small fat globules form from the breaking-up of the medulla, and the filaments become darker and more opaque. Afterwards these fat globules unite into larger drops, and then the walls of the nervous tubuli gradually diminish in their size.

The filaments that form in the substance by which the divided extremities are united are rather smaller than the old ones, but in all respects similar to nervous fibres; their average diameter is 0.000374.

Similar observations made on rabbits had very nearly the same results; but it was remarked that as in warm-blooded animals generally the nutrition of all the tissues is more under the influence of the spinal cord than in the cold-blooded, so here the destruction of the divided nerves was much more rapid in rabbits than in frogs; and that although kept without food for five months in the most unfavorable season of the year, the latter gave evidence of much more energy of reparation than the former which were well fed.

Although there was no doubt of new nervous fibres being formed between the extremities of the divided nerves, yet Nasse never found the motion or sensation return in the paralyzed limbs, though he sometimes kept the animal for three quarters of a year. He imagines that in the cases in which others have seen such a restoration of power, the divided portions must have been at once placed in exact apposition, so that the filaments could not lose their oily contents; for he clearly determined that the least alteration in the structure of a filament is sufficient to destroy its conducting power.

Müller's Archiv, 1839. Heft v., p. 405.

Experimental Researches on the Functions of the Encephalon, considered in relation to Sensation, Station, and Progression. By M. MONAT.

THIS is a long report to the Royal Academy, in which the author, after proving the insensibility of the brain, endeavours to point out the functions of its different portions. In this, however, he has but partially succeeded, and the Committee, MM. Ribes, Blandin, Amussat, and Bouillaud come to the following conclusions: 1, That the three great nervous centres, the spinal marrow, the cerebrum, and the cerebellum, have distinct and special functions; 2, that sensation, properly so called, and motion are under the immediate and direct influence of the spinal marrow, and have each particular nerves; 3, that the brain presides over the various manifestations of intelligence and volition; 4, that the cerebellum plays an important part over the functions of *Progression* and *Station*. As to the functions peculiar to particular parts of the nervous centres, much yet remains to be done for their determination.

Bull. de l'Acad. Roy. de Méd. Juin 17, 1840.

Philosophical and Experimental Researches into the True and Primary Action of the Secale Cornutum as a Medicine. By Dr. C. T. DE GRAVINA.

THE first experiments were made upon five full-grown healthy sparrows, to three of which eight whole grains of the ergot were given, and to the two others six grains a piece, powdered and formed into pills by means of syrup. The two latter were the first to feel the effects of the drug, and then those which had taken the whole grains; but both exhibited the same phenomena. They first ceased to chirp and flutter when the cage was approached; they then remained immovable and could with difficulty support themselves; next they erected their feathers, which they shook from time to time, as though to free themselves from something that oppressed them and irritated their skins; then they violently shook their heads from side to side, opening and shaking their beaks, with an effort to vomit, which after a time took place, when they threw up fragments of

the pills or whole grains of ergot, soaked in a clear and frothy fluid like saliva. The muscular weakness increased to perfect immobility unless they were much teased, when they removed a few steps from the spot and relapsed into their former state; and when thrown into the air they soon fell to the ground. The respiration and pulse became slower, and with the animal heat decreased gradually till their death, which took place in six or seven hours after swallowing the ergot. Examined immediately after death, the viscera presented no inflammatory morbid appearances. The lungs were healthy, a little congested. The right ventricle, auricle, and the *venæ cavæ* were distended with blood, and the spleen was much congested. The brain presented no morbid changes, but the muscles were fragile and contained black blood. Two guinea-pigs were the subjects of the next experiment, a male and a female, the latter ten days advanced in her second pregnancy. Twenty-four grains of ergot, powdered, and made into a paste with flour and water, were given to each daily before their other food, and the dose was increased each day by the addition of twelve grains till it amounted to seventy-two grains. In about an hour after each dose they became immovable and indifferent to any disturbance, but recomposed themselves immediately. The heart beat very slowly, and they refused every kind of food. Two or three hours were passed in this state, and then they returned to their former liveliness; but the effects of the ergot were more distinct and permanent in proportion as the dose was augmented. The female, though pregnant, exhibited no increase in size during the eight days that she took the ergot, nor indeed after it had ceased to be given; so that Dr. De Gravina began to doubt the fact of her pregnancy, especially as the time for her bringing forth had now passed; and although her belly might have been rather tumid yet that was attributed to fat, as she took a great deal of food, and had been confined from the commencement of the experiment in a pen by herself. However, twelve days after the usual period she produced three very lively young ones, one of which was blind of the right eye.

Wishing to try the effects of the ergot upon a healthy person, Dr. De Gravina swallowed twenty-four grains in powder, which in three quarters of an hour produced a sensation of weight in the epigastrium, which, slight at first, became in a short time very painful. This was followed by nausea and eructations having the odour of the ergot, and terminating in attempts to vomit. His face became very pale and the skin cold, particularly that of the face; there was great oppression in the head with incapacity for any mental exertion, apathy, and a feeling of complete prostration and vertigo on walking across the room. The pulse, which before the experiment was 65, fell to 54, small and slow; and the respirations decreased from 18 to 13 per minute. There was a complete disgust for food, with an occasional feeling of coldness at the stomach that thence pervaded the whole frame. All these symptoms were instantly removed and a voracious appetite was restored by simply taking a glass of strong wine.

Having thus, he says, ascertained that wine was an antidote to the effects of ergot, Dr. De Gravina resolved to try whether opium and mace would have an equal power to prevent the sedative action of the drug when administered with it; but, in order to learn what would be the effect of the opium and mace given separately, he previously instituted the following experiments:

A grain of opium was given to a sparrow just caught, and a grain and a half to another. In half an hour the former became exceedingly lively, chirping, fluttering, and turning his head in every direction in a most excited manner for twenty minutes, when he fell asleep. His breathing was frequent and his heart beat most rapidly, and the heat of his body was much increased. Roused by a kind of convulsion, he vomited a fluid like saliva in which a little opium was dissolved, and then recomposed himself to sleep, during which universal tetanic spasms came on, followed by paralysis with atonic spasms of the right side. The tetanus became more frequent and violent, and in one attack he vomited a larger quantity of similar matter as before; the attacks then became gradually

less violent and frequent; he fell again into a deep sleep, from which awaking by degrees he returned to his previous state of health. The second sparrow exhibited the same symptoms but in a more violent degree, and having been prevented from vomiting by a ligature round the neck, the tetanic spasms continued incessantly to his death. The cerebro-spinal axis was vividly injected in every part, and the digestive tube was much the same; the lungs were gorged with florid blood, and the muscles were rigid and tore with difficulty, nor were they at all injected with dark blood as in the experiments with the ergot.

Having now established (as he imagined) the action of both substances singly, Dr. De Gravina gave another sparrow half a grain of opium with three grains of ergot in a pill. In three quarters of an hour the effects of the opium appeared as before with great liveliness of motion, but instead of passing into a state of stupor, the animal became depressed and exhibited all the signs of poisoning by ergot. In this state he gave it four drops of laudanum, which instantly removed all the symptoms. In repetitions of the last experiment, the opium always counteracted the effects of the ergot, with or without exhibiting its own, according to the proportion it bore to the dose of ergot.

The effects of mace were much the same as the early symptoms produced by opium, but in an extreme degree; and after the animals had remained about half an hour in this state, a slight opisthotonos appeared, increasing rapidly till near the death of the birds, when they began a progressive movement in a straight line, turning neither to left nor right, but continuing to push against any obstacle that opposed itself insurmountably to their progress, and moving their legs as though they were swimming. A strong bronchial rattle with panting came on before death, which occurred about four hours after they had taken the mace. Immediate dissection disclosed the intestinal tube highly injected: the lungs hard, hepatized, and engorged with very florid blood; a bloody serous fluid filled the trachea; the parietes of the heart were redder than usual; the venous blood was of a bright red and gave out a strong smell of nutmeg; the vessels of the brain and spinal cord were very conspicuous and of a most brilliant colour. These experiments were repeated with various doses of the mace, but with the same results; and also with mace combined with ergot, when each in turn produced its peculiar effects, but with a modified intensity, as resulted from the combination of opium and ergot.

Cicuta given to sparrows produced direct depression and stupor without any previous excitement, and combined with ergot, death without a struggle. The morbid appearances were the same as in poisoning with pure ergot.

Dr. De Gravina next cites a case of irritable uterus with diseased ovary, first relieved by cicuta, and in a second attack by ergot, to prove the identity in the mode of action of these remedies; and several cases of hæmoptysis and active inflammations treated with bleeding, ergot, ice, and digitalis, in order to establish the same point in regard to them.

From these experiments and cases, Dr. De Gravina concludes that ergot, like cicuta and digitalis, is a direct sedative, and that it is as directly opposed in its action to opium, mace, and wine. Hence he considers it a good antiphlogistic remedy, and well calculated to lower the vital powers.

With regard to its action on the uterus, he cites several cases from which he concludes that the condition of the uterus that renders it liable to be stimulated to contraction upon its contents, is when there is a degree of morbid vigour in the organ, and not when it is in a state of real debility, for then the ergot is worse than useless as it induces general depression.

[The reader will at once perceive the imperfections in the mode of experimenting, and the chasms and weak points in the chain of reasoning in the foregoing paper. Still the experiments have some value as single facts; and they deserve more consideration from their results coinciding with those of Mr. Wright, (*Edin. Med. and Surg. Journal*, No. 142,) more particularly in the fact of the power of ergot in prolonging gestation in the guinea-pig and rabbit, when administered for a considerable period.]

Annali Universali di Medicina. Ottobre, 1839.

PATHOLOGY, PRACTICAL MEDICINE, AND THERAPEUTICS.

On Cramp of the Tongue. By Dr. HOFFMAN, of Suhl.

A PERSON suffering from chronic gout came to me in great distress for my immediate assistance, saying that since the previous day he had had four attacks of such severe cramp of the tongue, that it had been completely rolled inwards towards the frenum. The frenum itself also was extremely painful. During the attack which lasted from ten to fifteen minutes, he was unable to speak, and could only utter hollow expressions of pain; he felt also considerable constriction of the chest. As he was a full-blooded man I ordered him to be largely bled, to abstain rigidly, to take nitre with ipecacuan and aconite, and to use as a gargle an emulsion with laudanum. He had only one slight attack after the use of these measures.

Medicinische Zeitung. June 3, 1840.

On the Pain of the Back in Intermittent Fever. By Dr. GROSSHEIM.

THIS paper contains the results of observations made in fifty cases of intermittent fever, for the purpose of testing the opinions of Dr. Kremer (noticed in our Fifteenth Number, Vol. VIII., p. 67), who had stated that a painful sensation is a constant and pathognomic sign of intermittent fever, on pressure over the first dorsal vertebra and the adjacent parts of the spine, and that there is a constant relation between the severity of this symptom and of the general disease. The following are the results which Dr. Grossheim has obtained, and which seem to confirm Dr. Kremer's statements, although they had been contradicted, as we formerly stated, by the experience of other observers: 1. Pain on pressure on some part of the spinal column is a constant symptom of intermittent fever, except in those cases in which the ligaments of the vertebræ have become by age or disease so rigid that they will not yield to pressure. 2. There is no definite locality to this pain; it may be situated in any part of the column, but is most frequent in the middle of the dorsal portion, especially in quotidian intermittents. 3. The extent of the pain also varies considerably; one or two vertebræ only may be tender; and the pain rarely occupies the space of more than five or six; it may also be situated at distant parts, with intervals in which none is excited by pressure. 4. The intensity of the pain is equally variable. Sometimes it was so severe that the slightest touch of one of the spinous processes produced severe suffering; but sometimes violent pressure was required to detect it. Among those vertebræ that excited pain when pressed, the middle one was commonly the most sensitive; and in those above and below it, the tenderness gradually decreased. 5. The pain was more severe during the paroxysms than in the intermissions. When the severity of the fever diminished or the tendency to its returns grew less, the severity and the extent of the pain in the back also decreased; but the complete removal of the fever was not always accompanied by the entire loss of the pain, which often continued in a modified degree after the fever had ceased to return, and remained the longer the more severe it had previously been. 6. Complications of the intermittent fever did not appear to have any influence on the pain; it continued when the character of the fever was altered either for the better or for the worse, and it returned in cases of relapse.

From observing the constant existence of this symptom, the author was induced to try what would be the effect of remedies that would tend to correct the local excitement that seemed to exist. He relates very briefly five cases, in which eight or ten leeches were applied over the spine in the situation where pressure gave the most pain. In four of these no other remedy was required; the pain ceased in a few days, and there was no recurrence of the febrile paroxysm.

Medicinische Zeitung. June 3, 1840.

On the Presence of Iodine in Cod-liver Oil. By L. GMELIN.

[THE source of the therapeutic utility of this very nauseous medicine is in a great measure demonstrated by the following observations of Professor Gmelin.]

I had announced, says Professor Gmelin, that it was impossible to detect iodine in two kinds of cod-liver oil, of which one had a clear and the other a brown colour; and I had left it undecided whether the iodine found by other chemists had proceeded from the iodate of soda employed in their experiments, or whether certain samples of the oil did really contain iodine. The following researches will show that the genuine oil does clearly contain iodine, and that the examples of it which I first examined were spurious:

By treating sixty grammes of pure cod-liver oil, from Bergen in Norway, by Hausmann's method, I obtained by solution in alcohol a saline mass, which acted in the following manner: Its aqueous solution, mixed with starch and diluted sulphuric acid, gave a violet colour, which immediately disappeared on adding oil of vitriol, and was exchanged for a yellow hue. The same solution gave with starch and chlorhydric acid a violet colour, which soon disappeared on the addition of chlorate of potash. The experiment was repeated with 750 grammes of the same oil. The results were the same; only that in consequence of the greater quantity, the colouring of the starch was much more intense, and was not so promptly destroyed by the oil of vitriol or the chlorate of potash. Carburet of sulphur agitated with the aqueous solution of the saline mass with the addition of diluted chlorhydric or sulphuric acid was coloured violet; and when a portion of the same saline mass was thrown into a mixture of peroxide of manganese and moderately diluted sulphuric acid, which had been previously heated in a glass tube, the violet vapours of iodine were immediately seen rising and staining starch-paper blue.

These experiments leave no doubt of the presence of iodine in this cod-liver oil. On the authority of M. Tiedemann, a merchant at Bremen who has an intimate knowledge of the article, Prof. Gmelin says that there are in commerce four kinds of genuine cod-liver oil. The oil is melted by exposing the livers to the sun in casks which are placed upright, and divided into three parts by moveable boards placed one above the other. The clearest oil, and that which is most fit for medicinal purposes is that which floats to the top; the next layers are coarser, and the lowest are quite brown. The refuse of the casks forms a deep-coloured and thick oil, which is used in the manufacture of leather.

[In the Dublin Journal for July last, there is a valuable paper by Mr. Donovan, pointing out the great desideratum of rendering this oil palatable. He says this is effected by using a temperature in its expression not exceeding 192°.]

Bulletin de Thérapeutique. Mai, 1840.

The Rest-harrow (Ononis Spinosa, or O. Arvensis,) a Remedy for Rheumatism.

By Dr. ASCHERSON, of Berlin.

OF this, as of many other remedies for chronic rheumatism, little more can be said than that a respectable author adds his testimony to the correctness of popular belief. Dr. Ascherson first heard of the virtues of rest-harrow (a common weed in this country as well as in Germany) from a washerwoman, and being convinced that it cured her, he tried it in several other cases and found it surprisingly beneficial. It was not invariably successful, but it never did harm, and cured many cases that had long resisted other means. The form of administration is a concentrated decoction of the fresh herb with its roots, or of the roots and stems dried; and a quart of the decoction must be taken daily. Its immediate effect is powerfully diuretic.

Casper's Wochenschrift. June 6, 1840.

On the Production of Chronic Ventricular Hydrocephalus, in consequence of the pressure exercised by tuberculous masses of the Cerebellum on the Straight Sinus.
By M. F. BARRIER.

[THE object of this paper is sufficiently evident from its title; two cases are carefully narrated which at least prove coincidence of the two anatomical states referred to, while analogy favours the notion that the obstruction to the return of the blood through the straight sinus may have been the cause of the local dropsy. These cases the author himself candidly admits may be of very rare occurrence; nevertheless, as we agree with him in regarding the point as one of no mean interest, we extract some of his general remarks respecting it.]

The anatomical conditions capable of explaining the production of this form of hydrocephalus are: 1, the presence of the tuberculous mass in the *middle lobe* of the cerebellum; 2, its forming a considerable projection on its superior surface, so as to push the tentorium cerebelli upwards and exercise pressure on the straight sinus. Other conditions conducing to the same result might also be encountered; thus inflammation might lead to adhesion of the tumour with the tentorium, and gradually spreading to the interior of the sinus, determine the formation of a coagulum which in its turn would oppose the circulation of the blood returning through the *venæ Galeni* from the ventricles: these veins might also undergo pressure on their egress from the fissure of Bichat. It is evident that obliteration of these vessels, as well as of the straight sinus, can only produce one species of hydrocephalus, that of the ventricles, as the veins springing from the walls of these cavities form a system apart.

There may, it is true, be found in authors, numerous cases of tuberculous growth in the cerebellum unattended with ventricular dropsy; but it will be perceived in all those related with detail, that the tumour was seated either in the lateral lobes or at the inferior surface of the cerebellum, or that, if developed at the upper surface, it did not protrude upwards sufficiently to exercise pressure on the straight sinus. On the other hand, chronic non-congenital hydrocephalus is frequently seen without coincident tumour in the cerebellum.

Gazette Médicale de Paris. No. 17. *Avril*, 1840.

Coincident Occurrence of Variola, Modified Variola, and Varicella in the same Individual. By Dr. BRUNZLOW, of Brandenburg.

ONE of the author's family, a child a year and a half old with a very irritable skin, who had been vaccinated when a few months old with lymph taken directly from the arm of a healthy child, and who had had five regular vesicles on the two arms, was affected during its infancy with various exanthemata. It had scarcely recovered from an attack of urticaria when the diseases mentioned above began to appear, though the child had not been in contact with any one affected by them. The smallpox eruption occurred in a measure regularly; it commenced on the face and finished on the extremities, so that within a few days the whole body was covered with an innumerable quantity of pustules.

When the eruption was completed, and when, according to the general rule, no new pocks ought to have broken out, there appeared both on the face and on the trunk and extremities, and between the vesicles that were already formed and were passing through their regular course, a number of others far smaller, paler, and possessing less activity, which both in their form and in their course were very different from those that first appeared, and which from all their characters could be regarded only as varicella.

The vesicles first mentioned went on in their development, increased in size, became filled with a serous fluid, presented depressions at their centres, and became surrounded with a red areola; but the author observed that after the fourth day of their eruption, the majority of them did not go on to suppuration. Their redness diminished, the lymph which they contained dried up, and after a few days they were covered with crusts. They presented evident examples of modified smallpox, the varioloid disease.

Several of the vesicles of the first eruption, however, did not dry up, but went on further in their development. They filled with pus, their areolæ reddened and were vividly inflamed, and after a few days they acquired the form of genuine and perfect smallpox. Their number, however, was not considerable; there were few on the face but they were more numerous on the abdomen and on the inner side of the forearm and thigh.

The fever accompanying the eruption, which did not diminish on the drying of the varioloid eruption, increased with the progressive suppuration of these last pustules, and became rather severe.

The varicella, while the variolous eruption was suppurating and the varioloid was drying, had not yet finished coming out; and new vesicles of it kept constantly appearing among those of the other diseases, and after lasting a few days and filling with a watery lymph, dried and became covered with a fine light scurf.

At last when the variolous eruption had completed its stage of suppuration and passed into that of drying, and when the desquamation of the varioloid was finished, the fever diminished, no more vesicles of varicella appeared, the patient became more lively, and regained his appetite, and soon after was completely restored to health. The diseases had altogether occupied some weeks. The scars which remained from the variolous eruption were quite different from those of the varioloid; those on the face still indicate their origin by their characteristic signs. The scars of the varicella, on the contrary, disappeared very soon after the disease, and those of the varioloid eruption have been lost sight of for many years, so that now no trace of either of them can be discerned.

[The author has added some rather lengthened observations; but they are not sufficiently apposite to his singular though somewhat loosely related case to render their translation necessary.]

Medicinische Zeitung. Mai 20, 1840.

Case of Menstruatio Recidiva. By Dr. PETERSEN.

A healthy woman, aged seventy-nine, was seized on the 26th of March with uterine pains, these lasting a few days were terminated by a hemorrhagic discharge. On the 23d of April she was again affected in the same way, the discharge appearing on the 25th and continuing four days. Since that period (twelve months ago) she has regularly *menstruated*.

[There are several cases on record in which the menstrual periods have been regularly continued until seventy, eighty, and ninety years of age. It has been said (Locock) that such cases are not genuine cases of menstruation, but sanguineous discharges arising from uterine disease. But we have at this moment a lady aged sixty-two under our care, who regularly menstruates without any symptom of uterine disease. A most extraordinary case, similar to that of Dr. Petersen's, is given by Velasquez, of Tarentum, of the abbess of Monvicaro, who at the age of 100, after a severe illness, had a recurrence of the catamenia; and not only this, a new set of teeth and a fresh head of hair appeared!]

Bibliothek for Lager. Feb., 1840.

Anatomico-Pathological Researches on Cirrhosis of the Liver.

By ALFRED BECQUEREL, Paris.

THE name cirrhosis was given by Laennec to a peculiar affection of the liver in which that organ appears as if filled with numerous yellow granules, which are sometimes present in such numbers that the surface of a section of the liver presents an uniform yellow colour. If this surface is carefully examined, M. Becquerel says an innumerable quantity of minute granulations may be discovered, which may be compared to the lobules of hardened and reddish-coloured fat which are commonly found in the subcutaneous cellular tissue of the thigh and leg of anasarctous subjects. These little masses are sometimes intimately

united to the texture of the liver, but they are frequently separated from it by a thin layer of cellular tissue which forms a slight envelope round the globules from which they are easily detached.

The exact nature, the causes, and the symptoms of this affection are very imperfectly understood; and it is for the purpose of elucidating these points that M. Becquerel has published the present memoir. Laennec considered that in this disease a new morbid product was deposited in the liver, which he termed "cirrhose," and which he believed might be also developed in other organs of the body; appearing first in a state of crudity and afterwards softening. Andral states that the granules, in his opinion, merely arise from hypertrophy of the white or secreting part of the liver, which in the more advanced stages is accompanied with corresponding atrophy of the red or vascular tissue, giving rise to that shrivelled state of the liver generally which was described by Laennec as frequently occurring in this disease. M. Cruveilhier considers that cirrhosis consists in atrophy of a great number of the lobules of the liver, and a corresponding degree of hypertrophy of those which remain which causes the irregular granulated surface. Dr. Carswell, who gives an admirable description and delineation of this disease in the article Atrophy, in his work on Pathological Anatomy, regards it as consisting in atrophy of the lobular structure of the liver, produced by the pressure of a contractile fibrous tissue formed in the capsule of Glisson; an opinion which, as we shall find, very nearly coincides with that adopted by the author of the present paper. M. Bouillaud regards cirrhosis as a disunion of the two natural elements of the liver, the yellow granulations being nothing more than the secreting lobules undergoing disorganization in consequence of obliteration of the vascular tissue and consequent obstruction of the hepatic circulation.

M. Becquerel, previously to stating his own opinions on the nature of the morbid alteration of the liver in cirrhosis, briefly reviews the different opinions concerning the intimate anatomical structure of this organ in its natural state; and he adheres to the notion that there are two distinct substances: one yellow, which is the true secreting tissue, and the other red, which consists of the ramifications of veins and arteries. He inclines to the opinion of Cruveilhier, that each lobule possesses a spongy tissue not injectible: and thus widely differs from Mr. Kiernan, who describes the liver as being throughout essentially vascular; the lobules consisting of minute radicles of the biliary ducts surrounded by a plexus of the terminating branches of the portal veins. The latter eminent pathologist explains the differences in appearance between the red and yellow parts of the liver by the different degrees of injection of the different portions of its tissue.

Admitting, then, the presence in the liver of secreting lobules, into the interior of which no vessels enter, not even the minute ramifications of the biliary ducts, which together with the branches of the vena porta and hepatic artery form a network round the lobules without penetrating them; the lobules themselves merely consisting of a mass of albuminous corpuscles, as described by MM. Dujardin and Verger; M. Becquerel next endeavours to ascertain which of the tissues—the secreting or the vascular—is the one altered in cirrhosis, and he arrives at the conclusion that it is the latter only. He says that this tissue becomes infiltrated with a yellowish plastic or fibro-albuminous matter, which possesses the properties which characterize fibrine and albumen; for it is coagulated by heat, and by a continued application of that agent is converted into a horny substance. He considers that this effused matter is analogous in its composition to the false membranes which are developed in mucous, and more frequently serous, tissues; and he says that it undergoes the same changes.

M. Becquerel has determined that in this disease of the liver no pus globules can ever be detected in the altered structure; a very small quantity of fatty matter is likewise present, which is always abundant where pus is met with. He deduces from these facts that cirrhosis does not arise from acute inflamma-

tion: the absence of fat will also distinguish this disease from the fatty disease of the liver,* in which this organ is likewise of a yellow colour.

This fibro-albuminous matter is supposed to be deposited by interstitial infiltration in the central part of the secreting lobules, and the yellow substance of the liver becomes thus hypertrophied and causes compression and eventually atrophy of a great part of the red or inter-lobular substance. Many of the vessels and ducts are thus obliterated, and the tissue of the liver becomes difficult of injection. In the most advanced stages of this disease the effused matter loses great part of the water which entered into its composition, becomes firmer, and contracts in size. It thus undergoes the same changes as false membranes, which are at first soft and thick like white of egg, but which afterwards becomes organized and firm, and lessen in volume. From the contraction of this matter the yellow substance of the liver which was at first hypertrophied becomes atrophied, the altered lobules are diminished in volume, and many of them often coalesce, forming the patches which were described by Laennec as occurring in certain forms of this disease, and which give an irregular appearance to the surface or to a section of the liver. When this retraction has taken place, a great portion of the red or interlobular tissue of the liver no longer exists, and we only see an irregular agglomeration of yellow tubercles of different sizes, and the whole organ becomes hardened and shrivelled.

The immediate causes of this disease are completely unknown. M. Becquerel conjectures that it may arise from active and long-continued congestion of the liver, consequent upon chronic disease of the lungs or heart (with the affections of which organs cirrhosis is often complicated), or arising from other causes.

Cirrhosis never affects the liver partially, it always attacks all parts of its substance simultaneously. The gall-bladder is almost always quite natural. M. Becquerel has not made any comparative analysis of the state of the bile in this disease, but he found it vary considerably in consistence and colour.

This affection of the liver is mostly complicated with organic disease of other parts, as Bright's disease of the kidney, and various lesions of the heart and lungs; it is rarely met with by itself: M. Becquerel only found seven out of forty-two cases which he could consider as uncomplicated. He classes these complicating diseases under two heads: *First*, Chronic diseases, developed before or at the same time as the cirrhosis. *Second*, Diseases more or less acute, and probably consequences of the cirrhosis. 1. To the first class belong the following:—Lesions of the *Heart*. These are more commonly met with in connexion with cirrhosis than any other; for in forty-two subjects examined the heart was affected with chronic disease in twenty-one cases or in half; and the disease in all these instances had advanced to such a degree that it must have preceded, if it did not give rise to, the disease of the liver. The disease of the heart in these cases is often complicated with other affections, as emphysema of the lungs and chronic bronchitis, tubercular disease, or Bright's kidney.

It is exceedingly difficult to determine whether the affection of the heart gives rise to that of the liver, and if so in what manner. M. Becquerel has no doubt that the former precedes the latter in almost all cases, and supposes that it may give rise to it by keeping up a state of continued congestion of the liver. Pulmonary emphysema and chronic bronchitis, which are sometimes found accompanying cirrhosis, without disease of the heart, may be supposed to act in its production in the same manner, by obstructing the venous circulation. Cirrhosis is very rarely found in connexion with tubercular disease of the lungs. The fatty degeneration of the liver, on the contrary, is a frequent complication of consumption.

The morbid alteration of the *kidney*, known by the name of Bright's disease, frequently accompanies cirrhosis, having been met with fifteen times in forty-two cases. Some differences were observed between these cases of considerable

* See Brit. and For. Med. Rev. Vol. VIII., p. 554.

interest: thus in nine cases where cirrhosis and renal disease existed together and appeared to be of about the same standing, old organic lesions of the heart and lungs were also found, which our author considers to have been the exciting causes of the diseases of both the liver and kidneys, repeated congestion of both these organs having been occasioned by obstruction to the circulation. In another series of cases, which includes three out of fifteen, the cirrhosis seemed to be of a much older date than the affection of the kidneys, and probably gave rise to it by obstructing the circulation of the abdominal veins. In the remaining three cases the disease of the liver and kidneys seemed to be of about the same date and had been probably developed from a similar cause, the nature of which, however, was unknown.

2. In the second class may be arranged the following:—*Ascites*, which constantly accompanies cirrhosis in the more advanced stages; *Peritonitis*, producing purulent effusion and the formation of false membranes; *Pleuritis* and *hydrothorax*; *Pericarditis*—this has only been met with in a few cases; *Anasarca*—this generally occurs in complicated cases along with ascites and when the disease of the liver is in an advanced stage. Besides these, *œdema of the lungs*, *pneumonia*, and *pulmonary apoplexy* have been met with, as well as congestion of the mucous membrane of the alimentary canal; and *intestinal hemorrhage*, which must be considered as an effect of the disease of the liver, arising from the obstruction of the circulation of the blood through the vena porta.

Cirrhosis is more frequently met with in men than in women: thus of eighteen cases of the simple or uncomplicated form of this disease, twelve occurred in males and six in females. Of the whole number of forty-five cases examined by M. Becquerel, twenty-eight were found in men and seventeen in women.

With regard to the influence exerted by age, the eighteen simple cases may be thus arranged:

Between 18 and 20 years.	1
" 20 " 30 "	2
" 30 " 40 "	7
" 40 " 50 "	3
" 50 " 60 "	5

Thus persons between thirty and forty seem to be most liable to be attacked by cirrhosis. This disease is also met with in children; and M. Becquerel is disposed to think that it occurs more frequently in young subjects than has generally been supposed.

With regard to the symptoms produced by cirrhosis, none exist sufficiently characteristic to enable the physician to diagnosticate its presence during life. The most constant symptom of this disease in its more advanced stages is dropsy, which always commences in simple cases in the abdomen; its approach is generally unaccompanied by pain, but in a few cases the belly is the seat of pain, either with or without pressure, and the presence of peritonitis is thus indicated. *Anasarca* sometimes precedes the ascites, but Bright's disease of the kidney or disease of the heart are then always indicated. M. Becquerel says that the state of the urine is always peculiar in this disease; it is of a deep orange and often reddish-yellow colour, very dense, strongly acid, and deposits an unnaturally large precipitate of urate of ammonia, which is of a bright red or cinnabar colour. The causes of this state of the urine are unknown.

The course of this affection is uniform and continued, and it always proceeds more or less quickly to a fatal termination, being apparently uninfluenced by any plan of treatment.

Archives générales de Médecine. Avril et Mai, 1840.

On the Danger of applying Leeches which have been previously used.
By M. PUCHE.

THE transmission of virus by the fangs of leeches is an important question and worthy of examination. M. Puche, physician to the hospital of Midi, has

treated a patient in his wards, who affords a convincing proof of the danger of employing leeches which have been applied before. A messenger, æt. 24, was admitted into the hospital with urethritis of four months' standing, which had been recently complicated by acute inflammation of the epididymis. The epididymitis was the consequence of excessive labour, not of arrested discharge. Many applications of leeches were made to the hypogastric region for its removal. Five of the leeches applied were purchased at a low price by the nurse. Their bites inflamed, and took the aspect of Hunterian chancres. Now these syphilitic ulcers were too recent to have arisen from the same impure connexion that produced the gonorrhœa; but as it was possible that they were occasioned by the gonorrhœal matter coming into contact with the leech-bites, M. Puche, to satisfy himself, inoculated one part with the whitish discharge, and another part with the pus of the ulcers on the 28th of February, 1840. On the 4th of March the inoculation of the urethral matter had produced nothing, while that of the chancres had given an ecthymous pustule, which had the regular development of syphilitic pustules, and terminated by an indurated and coppery cicatrix. It is argued that the ulcers proceeded from the leech-bites (the leeches had certainly been employed on a syphilitic patient,) and that they had conveyed the infection from one patient to the other. The possibility of this transmission may be granted; but other experiments are necessary to prove it, and to determine whether the leeches are not destroyed by the virulent principle they imbibe; whether the poison is destroyed by them; and if so at what period do they become innocuous.

Bulletin Général de Thérapeutique. Juillet 30, 1840.

On the Itch in Adults and in Children. By Dr. KRAUSE, Physician to the Poor in Dantzic.

THE chief object of this paper is to prove the inseparable connexion between itch and the acari, which many have supposed to be only occasionally present in that disease. The author gives examples to prove, what we believe has not been before noticed, that the disease may exist in those who wash themselves very often or who have very tough skins without any eruption; the itching and the power of communication may be present, but no visible sign of the disorder may exist except the burrows of the insects. The following are his cases:

1. A journeyman tailor had three weeks previously slept with a comrade who had the itch. He came to me with a burrow in his left-index finger, from which I drew out an acarus, and I then examined him most carefully, but could discover no trace of any further eruption.

2. A servant-girl, the skin on whose hand and forearm was scarcely inferior to leather in colour and thickness, complained of itching in it. By the side of the finger I discovered seven burrows, out of which I extracted three acari; but there was not a pimple or a vesicle to be found on the whole body.

3. A washerwoman, the mother of a numerous family, remarked that her two youngest children were constantly scratching themselves and had an eruption on their hands. She showed me the children, and they had distinct itch, but she denied having it herself; she allowed, however, that she had sometimes felt an itching in the fingers and arms, but she had never remarked any vesicle. This statement was correct, for on the fingers, which had a kind of varnished appearance from the constant action of the hot water and the soap-ley, I could find no eruption, though there were several burrows, from which I pulled out four acari. On further questioning it appeared that the woman had long noticed these, but had thought nothing of them because there were no vesicles.

There are only two cases, the author says, in which one would not have a right to maintain that itch did not exist, when neither burrows nor acari can be found; namely, quite at the beginning of the disease, and when treatment has been employed for some days and the skin is partially scaling off, so as to destroy the burrows and the acari, but not the brood, which may soon after generate a new eruption.

If one has the luck to draw an *acarus* by daylight, one may easily be sure of his existence by cracking him on the thumb-nail; he makes a noise just like, only weaker than, that which his near neighbour the fair hexaped makes in the same circumstances. But if one brings him close to the flame of a candle he bursts with a distinct snap.

Casper's Wochenschrift. Juli 25, 1840.

On the Employment of Lactate of Iron. By MM. GELIS and CONTE.

AFTER stating some objections to the preparations of iron in common use, the authors give their reasons for supposing that the lactate of the protoxide of iron is superior to all other ferruginous preparations. These are that lactic acid is universally distributed throughout the body; and that all authors have endeavoured to administer iron in the form most easily soluble in the gastric juice. Berzelius, Tiedemann, and Gmelin, Dumas, Leuret, and Lassaigne, have shown that the gastric juice has sufficient lactic acid to account for its dissolving property. They find that the most useful preparations of iron are those most soluble in lactic acid and the reverse, and therefore consider it probable that iron after administration is converted into lactate of iron. Thus they were led to give the lactate direct.

M. Bouillaud and other members of the academy administered this preparation in twenty-one cases of anemia and chlorosis; but though they speak favorably of it, it did not appear to them to possess any decided advantage over other soluble preparations of iron.

Bulletin de l'Académie Royale de Médecine. Février 29, 1840.

SURGERY.

On a New Species of Strangulation in the Tunica Vaginalis Testis, followed by Internal Strangulation. By M. LAUGIER.

M. LAUGIER, surgeon to the hospital Beaujon, presented to the academy a pathological specimen, which is an extraordinary example of the above strangulation, caused by a circular fold of peritoneum, the edge of which surrounds the superior orifice of the inguinal canal and the free border of which floats in the abdomen, forming a sort of prolongation of the inguinal canal. It was formed by a double fold of peritoneum detached from the anterior wall of the abdomen. It was easily passed into the tunica vaginalis (like the finger of a glove cut off) from ten to twelve lines. It was returned with equal facility. A portion of small intestine, about a foot in length, had pushed this production before it in passing into the sac of the tunica vaginalis, and became strangulated by the floating ring. The strangulation, therefore, was not at the neck of the sac, as usually occurs in congenital hernia; neither was it an encysted congenital hernia, for there was no secondary sac, but a ring at the free part of the floating fold. The reduction of the strangulated hernia produced the separation of the circular band which surrounded the intestine, and the external strangulation became internal, without there being any possibility of suspecting before death a similar course of strangulation in the tunica vaginalis and internal strangulation.

The dissection revealed the existence of a similar fold on the opposite side, and the patient had a congenital reducible hernia in the left groin. But as there was neither strangulation nor rupture, the free border of the fold was rounded and not broken as on the right side. No similar disposition of parts has been hitherto recorded. If it had been possible to suspect it during life it is not likely that an attempt at reduction would have been made, for the reduction itself was the cause of the strangulation in producing rupture of the fold. Gastrotoomy was the only operation that could have been practised, but the rapid death of the patient prevented this.

Bulletin de l'Académie Royale de Médecine. Juin 30, 1840.

Peritonitis from Injections into the Uterus, the Injections passing through the Fallopian Tubes into the Cavity of the Peritoneum. By M. HOURMANN.

A PATIENT who was in the hospital of Loursine under M. Hourmann, labouring under leucorrhœa, was ordered an injection into the uterine cavity. It was administered by means of a clyster pump, and at the first stroke of the piston the patient uttered a sharp cry, and pressed the hand strongly on the left iliac region. Symptoms of metropéritonitis came on and the most energetic treatment was adopted. It being an important practical point to determine whether peritonitis was likely to ensue from uterine injections, several novel experiments were made in the hospital of Loursine to determine whether liquids would pass along the Fallopian tubes into the cavity of the peritoneum; and it was found that injections with an arterial syringe passed into the tubes. Abundant injections by means of syringes double the size of urethral syringes passed into the tubes preceded by a certain quantity of air. In some few cases small quantities passed quite through the tubes. As this matter is to undergo further examination, we shall defer further notice of it at present.

Gazette Médicale. Juillet 11, 1840.

Congenital Dislocation of the Humerus reduced after Sixteen Years.

By M. GAILLARD, Surgeon to the Hôtel Dieu, of Poitiers.

THE following is an abstract of a report to the Royal Academy of Medicine, drawn up by MM. Cannet and Bouvier. They consider the case as very curious, and without a parallel in the history of surgery.

Mademoiselle L. B. a few days after birth presented a deformity of the left superior extremity with much pain during its movements. The elbow was thrown from the body, the forearm semiflexed, and the hand in a state of pronation. During her infancy she could not bring the elbow near the trunk, nor raise her hand higher than the chin. The limb was often painful during her early years; but latterly the pain had only come on when the limb had been long fixed in one position. When M. Gaillard saw her in 1836 she was sixteen years of age. He found in the posterior part of the shoulder a projection formed by the head of the humerus, which was placed in the subspinous fossa of the scapula, above the middle part of the spine, which was curved by the pressure it had undergone. On moving the arm, the head of the bone was felt rolling under the fingers, and it appeared abraded from rubbing on an irregular surface. The hand could not be brought to a state of supination. The forearm could not be extended on account of the permanent contraction of the biceps. Elevation and rotation of the arm were impossible.

On the 5th of January, 1837, the patient was placed on a stool, a cushion was applied to the external border of the scapula, and maintained by two cords passing from its extremities and attached to two fixed rings. The arm directed horizontally inwards was then submitted to the action of a weight of sixteen pounds. The weight was suspended at the end of a cord which passed through a fixed pulley, and was attached to a bracelet fixed above the elbow. Time after time M. Gaillard increased the power of the traction, occasionally adding his efforts to the force exercised by the weights. The extension prolonged from twenty to twenty-five minutes was repeated on the 10th and 11th of January, each time bringing the head of the humerus nearer the glenoid cavity, and with no other inconvenience than a slight pain and swelling of the arm. On the 13th the head of the humerus was more moveable. Further traction was employed, the arm being always placed horizontally. The humerus yielded, glided over the scapula for the space of an inch and a half, and approached the glenoid cavity. M. Gaillard then seized the elbow, and by carrying it backwards and upwards he directed the head of the humerus downwards and forwards, then lowering the limb he felt the head pass under the acromial arch, and leap over a projection which appeared to belong to the articular cavity. The arm was

now in contact with the trunk, it was sensibly lengthened, and all its movements could be executed with ease.

The dislocation, however, recurred again and again, and was as often reduced. The difficulty was to maintain the bone after reduction. This, however, was effected by careful bandaging. The patient suffered considerable pain at times, but was relieved by the application of leeches. From the first reduction to the entire cessation of pain a period of more than two years elapsed; but the cure was then complete, the patient using the limb equally as well as the other.

Bulletin de l'Académie Royale de Médecine. Juin 30, 1840.

The Myopodiorthoticon, or Apparatus for the Cure of Shortsightedness.

By Professor A. A. BERTHOLD, of Göttingen.

THE principle of this apparatus (whose long name is derived from *μυωψ*, one that is shortsighted, and *διορθωτικόν*, having power to correct,) is founded on the possibility of increasing by exercise the power of accommodating the eyes for clear vision at different distances. Myopia depends, it is well known, on the rays of light which enter the eye being brought to a focus too soon, and in front of the retina, on which exactly the image should be formed. On whatever physical peculiarity in the eye this defect may depend, it is believed that it might be compensated by an increase of that voluntary power of altering the form of the eye, which all exercise in looking alternately at near and at distant objects.

The whole of the apparatus, except a few screws, is made of wood. It consists of a reading desk which may be set on any table, and which is about a foot and a half long and a foot wide. This desk is moveable by hinges on its anterior side, or by some other means on a board of about the same size, so that it may be placed in a convenient position, and be fixed there by a stop attached to the board. From the back part of the desk a screw goes straight upwards on each side; and these screws pass through a moveable cross-piece, which can be either raised up or drawn down and fixed. Through the middle of this cross-piece, there is a horizontal hole, for the passage of a bridge which is directed forwards and a little upwards, and which in front is hollowed out to receive the upper part of the root of the nose. On its upper surface this bridge is graduated in inches and lines, and it is moveable in the hole through the cross-piece, and can be fixed in it by screws. By the mobility of the desk on the board, of the cross-piece on the upright side-screws, and of the bridge in the cross-piece, the apparatus may be arranged so that the book which is to be read may have the best possible position in relation to the eye. By the side a measuring rod passes from the desk upwards through a hole in the cross-piece, so as to determine with the assistance of the measure on the bridge the gradual decrease of the myopia, and to enable the apparatus to be fixed in regularly determined positions, according to the size of the print which is being read.

The author relates a case of most aggravated myopia, in which the patient, a man twenty-six years old, who had never been able to read at a greater distance than five inches, was enabled, by the use of this apparatus for about four months, to read just as easily at a distance of eleven inches and four lines. The distance between the book and the rest for the nose was increased from half a line to a line every two or three days by means of the screws; and the author believes from what he saw in this case that slowness is essential to certainty of cure.

Von Ammon's Monatsschrift. June, 1840.

Luxation of the Second Cervical Vertebra, reduced after seven months by a peculiar method. By M. JULES GUERIN.

THE author, in a letter to the president of the Royal Academy of Sciences, states that this case resulted from a fall on the chin; but the displacement did not occur till the next day, and he attributed it then to muscular contraction. On this view of the mechanism effecting the luxation, he has employed an ana-

logous mode of reduction, but in the opposite direction; the displacement of the vertebra being consecutive to the rupture of the ligaments, and of part of the articular surface, under the influence of certain muscles, he endeavoured to bring the antagonist muscles into play and thus gradually produce replacement. This was effected without accident, and the appearances of the luxation successively disappeared; and the young woman after three months consecutive treatment has the neck perfectly straight, and can execute any movement of the head with the greatest facility. This is interesting, as there is much difference of opinion among surgeons as to the propriety of attempting reduction in such cases. In this instance MM. Marjolin and Bouvier thought there would be great danger in the attempt.

L'Expérience. Juin 18, 1840.

New Operation for Prolapsus Ani. By M. ROBERT.

RELAXATION of the sphincter ani being the cause of this disease, all the remedies hitherto employed for its cure are inefficacious when it arrives at the last stage, as they can only act on the mucous membrane of the rectum. These reflections have induced M. Robert to shorten the sphincter in proportion to the amount of relaxation, so that the two cut surfaces of the muscle might unite and form a narrow ring to oppose to the descent of the mucous membrane. This operation was performed with success on a washerwoman, thirty-three years of age, in June 1839, in the hospital of La Pitié. This woman in her third pregnancy had a prolapsus ani, which was only temporary though it caused some pain. Her fourth pregnancy produced a prolapsus uteri, a permanent and considerable prolapsus ani, with relaxation of the abdominal walls. M. Robert excised a portion of the mucous membrane with some temporary relief; but the disease afterwards increased, the discharge of fæces became involuntary, and she suffered from pains in the loins and upper part of the thighs. When she entered the hospital the sphincter was so much relaxed that four fingers could be easily introduced.

The patient having been prepared for the operation by progressive diminution in diet, and the use of opium in order to effect long-continued constipation, M. Robert proceeded to operate in the following manner: An incision was made on each side of the anus, each incision being commenced a few lines external to the orifice, and carried backwards towards the coccyx. The fold of integument between the incisions, together with the portion of sphincter it covered, were removed, and the muscle was thus shortened by half its length. The wound was united from one side to the other by three points of suture. On the sixth day after the operation the sutures were removed. Union was nearly complete, but a fistulous passage remained from the anus to the coccyx. On the fifteenth day the woman had not passed any fæces. On the next day, the want of defecation being felt, in order to prevent any straining, the bowels were relieved by the curette. On the forty-first day the patient, who before the operation could not retain her fæces, kept an injection during the whole day; there was no more prolapsus; the opening had become of the ordinary size; but the finger when introduced did not experience the energetic contraction of the sphincter which occurs in the normal state. With the exception of a slight protrusion of mucous membrane the cure was complete in August.

Gazette Médicale. Juin 20, 1840.

Two Cases of the Excision of the entire Clavicle: one operation performed in 1835 by Dr. Cajetan Mazzoni, of Pisa, the other by Professor Charles Biagini, of Pistoia. Communicated by Dr. ARONSOHN, of Strasburg.

WHEN we consider the situation of the clavicle and the important offices it fulfils, it is natural to suppose that its loss must be followed by severe inconveniences, and that the form of the chest and shoulder with the motions of the

arm would be necessarily injured. Experience, however, in this as in other cases shows the futility of *à priori* reasoning in medicine.

CASE I. The first case was one of necrosis of the clavicle in a boy four years of age, of a decidedly scrofulous habit. About the time when spontaneous separation of the necrosed portions of bone was commencing, Dr. Muzzoni considered that the time had arrived to assist nature by extraction. Believing that the attachments of the clavicular muscles were destroyed, not only because necrosis was made evident by the probe, which proved that the periosteum was gone, but also because the bone was moveable; Dr. Cajetan thought it only necessary to divide the ligaments situated at the articular extremities of the bone. A director was introduced into a fistulous opening which existed near the sterno-clavicular articulation and a bistoury being passed along it the integuments were divided: the clavicle was seized with a pair of forceps, and the costo-clavicular ligament was divided with a straight blunt-pointed bistoury. Afterwards the other ligaments uniting the clavicle to the sternum were divided. The acromial extremity of the clavicle was apparent through an ulcer of the integuments, and therefore this bone was easily detached from the scapula. The entire extraction was completed with little loss of blood, and a portion of integument between the two wounds remained entire. The cure was completed within a month.

Three years after the operation the patient was in perfect health. The shoulder deprived of the clavicle was slightly depressed and approaching the sternum, but without affecting the symmetry of the parts. The motions of the arm were unlimited in any direction, the patient readily climbing trees.

CASE II. A boy fifteen years of age was admitted into the hospital of Pistoia in August 1838 under M. Biagini. The clavicle was affected with scrofulous disease, and was removed in a similar manner to the former case. Slight hemorrhage followed; but was stopped with charpie and moderate pressure. Caustic was occasionally applied to the wound and it had cicatrized within thirty days. This case is peculiarly interesting, as a firm fibro-cartilaginous substance now takes the place of the lost clavicle, so that the loss is not felt, every motion being perfect.

[For other cases of a similar operation, one by Mr. Travers, the reader is referred to Vol. V., p. 147, and to page 265 of the present Volume of our Journal. These cases will be useful as auxiliary proofs of the success of surgical resource comparatively new, and thereby encouraging surgeons to operate rather than leave a patient to almost certain death.]

Gazette Médicale. Juillet 18, 1840.

On the Radical Cure of Inguinal Hernia by the Horizontal Position, after the plan of M. Ravin. By M. BIAGINI.

A man, thirty-two years of age, consulted M. Biagini on account of a tumour in the left inguinal region, which this physician considered to be an entero-bubonocoele, and which had resisted all efforts at reduction. M. Biagini proposed a long continuance in the horizontal posture to the patient, aided by compression, but he refused it. A year afterwards the man was obliged to put himself under treatment for articular rheumatism complicated by pericarditis. After three months decubitus, which was consequent on the rheumatic affection and its treatment, the hernia did not exist, nor could it be made to appear by any effort or coughing. M. Biagini felt assured that the left external inguinal ring was singularly contracted. He considered this case as confirmative of the views of M. Ravin, and drew the following conclusions: 1. It is possible to obtain a radical cure of some herniæ by a long continuance of the horizontal position. 2. The cure takes place by a diminution in the size of the canal and the retraction of its walls, by which the lost obliquity is restored. These changes occur solely by the *vis tonica* of the tissues. 3. Though the tissues possess sufficient *vis tonica* to bring about the desirable changes, it is necessary that the general strength of system of the patient be somewhat considerable.

Bullettino delle Scienze Mediche. Gennario, 1840.

On the Operation for Strabismus. By Professor DIEFFENBACH.

SINCE my first communication on this operation it has had such a general reception and has acquired such an importance as I did not at that time anticipate. Upwards of 300 cases have been operated on by me within a few months, and both in Berlin and in other places my proceeding has been frequently imitated. I propose to give here a short general view of the results of my observations.

The youngest individuals in whom I have undertaken the division of the shortened muscle of the eye were five years old; the oldest were upwards of forty.

Sometimes one, sometimes both eyes squinted, and the operation had generally the same favorable result in both cases. When both eyes were affected I either operated first on that which squinted most, and when that was quite well on the other, or else on both at the same time.

Squinting inwards, from shortening of the rectus internus, was by far most frequent. Sometimes the trochlearis muscle was also shortened, so that it was necessary to divide it as well as the rectus. In the whole number of those I operated on there were only a few who squinted outwards, and still fewer in whom the eye was directed upwards or upwards and inwards. I found no eyes at all that squinted downwards.

Strabismus upwards was sometimes complicated with blepharoptosis. The division of the rectus superior not only cured the squinting, but the ptosis gradually diminished after it.

Strabismus outwards or inwards was often complicated with nystagmus bulbi. After the division of the external or internal rectus not only did the squinting cease but in general the nystagmus also. In other cases, however, the latter was persistent, and did not decrease till after the division of the rectus superior, or obliquus superior, or rectus externus.

When cataract and strabismus coexisted, the operations for both were done at the same time, and the result was in every case favorable to both.

In most of the patients the strabismus had commenced in very early childhood after ophthalmia neonatorum, scrofulous inflammation of the eyes with ulcers on the cornea, or after acute exanthemata, &c. In many there were cicatrices on the cornea or cataracta centralis. In cases of the former kind, in which hitherto artificial pupils would have been made, the operation was attended by success and considerable improvement of the sight.

All those who had strabismus of only one eye saw more weakly with it than with the other; in those who squinted with both eyes that which was turned least was usually the stronger. The weakness of the one eye had been observed by only a few of the patients; they had naturally looked only with the better eye and the other had been unemployed. The operation completely cured the weakness of sight; some who had actually amaurotic amblyopia could see clearly directly after it was performed.

Some of the patients previous to the operation often saw double; this defect continued for some time after it and then gradually ceased. Some others who had never seen double before did so immediately after the operation. These had been in the habit of looking only with their strong eye while the other had been unused. The improved position of the latter compelled it to see; but the double vision was subsequently lost.

Some who were operated on did not see so well immediately after as before the operation; but after some exercise this weakness of vision ceased and they could then see quite clearly. The cause of this was that when the eye was put in its normal position a point of the retina which was before unexercised was now brought into play and required some practice before it could fully discharge its functions.

Operation. That for strabismus convergens is here taken as the type. The operator always stands on the right side of the patient whether he be operating on the right or on the left eye. The patient sits on a stool, and an assistant standing behind him draws up the upper eyelid with a Pellier's hook. A second

assistant draws down the lower eyelid with a double hook which is set in a handle and of which the teeth are connected by a transverse piece. He kneels down before the patient so as not to be in the way.

The operator then puts a fine hook into the conjunctiva at the inner angle of the eye just where it is passing from the palpebræ to the bulb, passes it superficially through it, and gives it to a third assistant who stands on the left side of the patient. The operator next passes a second hook in the same way through the conjunctiva about a line and a half from the first. He and his assistant then both at the same time draw their hooks a little up, so as to raise a fold of the conjunctiva, and at the same time pull the bulb somewhat outwards. The fold is then divided with a pair of curved eye-scissors; and this cut usually at once exposes the tendon and the anterior part of the muscle. A couple of cuts with the scissors then expose the outer surface of the muscle; a rather blunt hook is passed under its tendon, and the two sharp hooks that held the conjunctiva are now removed; the eye is held completely in the power of the blunt hook, and is to be drawn by it from out the internal angle of the orbit. A flat probe is then pushed under the muscle; and the loose connexion by cellular tissue between it and the eye is broken up. The division of the muscle is made by the scissors already mentioned, either, first, through the tendon in front of the hook; or, second, behind the hook at the beginning of the muscular substance; or, third, some lines deeper back.

When the tendon is divided nothing of it remains on the eye, and the muscle commonly retracts a line backwards. When the muscle itself is divided at its anterior part or further back, its posterior portion retracts, and the anterior, which remains connected with the bulb, turns forwards like a loose flap, which according to circumstances, may be removed by the scissors or pushed back into the wound if it is thought desirable that it should unite again with the posterior portion.

In practised hands the whole operation seldom lasts more than a minute; and it is done almost without pain. When finished the eye is cleaned with cold water and a soft sponge. The after-treatment consists of cold lotions, and very great abstinence from food and strong drinks. The patient should be kept in a darkened room. In most cases the wound heals very quickly, and after a few weeks no traces of the operation remain, and the eye stands in its normal position.

The operation for internal strabismus is by far the most easy; the division of the obliquus superior for squinting upwards and inwards is more difficult; that of the rectus externus for strabismus divergens is more difficult still; and the most difficult of all is the division of the rectus superior for squinting upwards. With respect to the manipulations of these operations they are just the same as those for strabismus convergens.

Remarks on the operation. The fixing of the upper and lower eyelids with the elevator and the hook so as to expose the whole of the anterior surface of the globe is indispensable, for neither the will of the patient nor the separation of the lids by the finger can do this effectually.

The fixing of the globe can be accomplished only by fine hooks carried superficially through the conjunctiva; the seizing and elevation of the fold of conjunctiva by forceps sounds more gentle than to do it with a sharp hook, but it is in reality far more painful, more injurious, and more insecure; the fold raised up by the forceps easily tears or slips from their grasp, and if the forceps are made with hooks they wound as well as pinch the membrane. Two hooks must be employed to make the fold tense enough.

The great number of operations that I have performed has given me opportunity of observing the phenomena that ensue subsequently to them, and their after consequences. The question here is only of internal strabismus, but any surgeon will easily supply the necessary modifications for the operations in the other varieties. In the first case the eye after the division of the muscle

goes into its normal position. In the second it remains in some degree squinting. In the third it turns outwards.

In my first operations the position of the eye after the division of the muscle was left to chance, but I gradually succeeded in getting it into my own power to determine it. If there be the slightest degree of convergent strabismus, only a very small opening should be made in the conjunctiva, and the tendon only divided close to the eye without separating the muscle from the globe. In this case the eye at first almost maintains its previous position, but after some weeks it becomes straight. If the conjunctiva be more extensively divided, and if the under surface of the muscle be separated from the globe with a probe and then cut across, the squinting is at once nearly or completely removed. If the conjunctiva be divided over a greater arc and towards the back of the globe, if the cellular tissue be extensively separated and the muscle be detached far back and divided at its middle, then the eye, even in cases in which the whole cornea was before hidden in the internal angle, stands quite straight after the operation.

Hundreds of those whom I have cured have been seen by our own and by foreign medical men, and it was often impossible to distinguish the eye that had squinted from the other.

In some who still squinted slightly after the operation the position of the eye was made perfectly normal by tying up the sound eye and rolling the globe forcibly outwards so as to stretch the newly-formed uniting substance. In others of those whom I first operated on, in whom I had not adopted this after measure, I repeated the operation; and I found that in fourteen days after its first division the muscle was again intimately united with the globe, and that with the exception of a slight thickening and induration of this part there was no indication of a previous operation.

Immediately after the operation the eye can be moved inwards by the superior oblique, and at a later period by the divided muscle which has again united with the globe. In several persons in whom the muscle was divided deeper in the orbit the eye turned outwards some weeks after the operation, so that there was actually an external strabismus. If the divergence was but slight it was often sufficient to snip (*betupfen*) the conjunctiva at the inner angle, so as by the shortening of the membrane that was thus produced, to bring the eye into the middle. But if the divergence was greater I then divided the external rectus and the eye became straight again, especially when I at the same time removed a fold of conjunctiva from the internal angle, for the cicatrix that then followed tended to draw the globe inwards. If the eye, notwithstanding the division of the external rectus, still remained turned outwards, I then, after dividing and separating that muscle, tied a thread as fine as a hair upon its tendon, and with this pulled the eye forcibly inwards. The end of the thread was then drawn tightly across the bridge of the nose and fastened to a piece of good adhesive plaster, which was stuck upon the opposite side. The result for the most part surpassed my expectations.

Casper's Wochenschrift. July 4, 1840.

On the Operation for Strabismus. Claims of M. Jules Guérin.
By M. JULES GUÉRIN.

IN a letter on the treatment of strabismus, addressed to the Academy of Sciences, 29th June, 1840, M. Guérin says: "I have the honour to inform the Academy that I have four times practised with success the division of the muscles of the eye, in cases of convergent strabismus. I shall briefly state the principles which have directed me in this operation. I had long and publicly professed that strabismus was the result of the contraction of the muscles of the eye; and the varieties of this deformity the necessary consequence of different degrees of contraction. It is in fact an application of my general theory of ar-

ticular deformities in the skeleton, and caused one of the most eminent members of the academy to designate strabismus as *club-foot of the eye*."

M. Guerin goes on to state that in his clinical lectures he frequently proposed to extend division of the muscles to deviations of the eye in the same manner that he had applied it to deformities of similar origin, and that eighteen months since he offered to cure Dr. Pinel Grandchamp of strabismus by means of this operation. He proceeds: "As for the operation itself it differs in some respects from that of M. Dieffenbach. One of the reasons which induced me to pause before attempting his method, was the fear of inflammation occurring in a wound exposed to the air upon a delicate organ, and so near the cerebrum. These accidents I feel certain of avoiding by the following method:

"In place of dividing layer after layer, I detach the portion of ocular conjunctiva, which covers the muscles from the sclerotic, and raise it with broad-nibbed forceps until the muscle is exposed. This being divided with curved scissors, I restore the detached portion of conjunctiva to its place; this by closing the wound prevents the access of air, and obtains all the advantages of a subcutaneous wound. Experience has confirmed my preconceived notions of the theory; in the four operations I have performed there has been no sign of suppurative inflammation.

"The result of these operations has been very satisfactory; but not so immediately advantageous as M. Dieffenbach observed. In one instance there was a complete and instantaneous restoration of the natural position of the eye, in the others only an amelioration. This circumstance appears to be a natural consequence of the true origin of strabismus. At one time the deviation of sight is originally muscular, and the result of spasmodic contraction in a single muscle; at another time the contraction is consecutive or even primitive; but it has simultaneously affected many muscles."

L'Expérience. Juillet 9, 1840.

On the Cure of Strabismus. By Dr. F. A. VON AMMON.

[In the great number of the papers written on this subject, it is scarcely to be expected that more than two or three remarks on each should be worth abstracting. In the present article by the editor of the *Monatsschrift*, the following passages are worthy the attention of our readers:]

A principal point is the determination of the indications for the operation; and I think it the more important, because the whole history of the affection, notwithstanding the works of many excellent physiologists, is extremely obscure and uncertain. Nor could this be otherwise when the anormal position of the eye is in different cases so varied, and so often the consequence of diseased conditions of the brain, the abdominal nervous system, and of the globe itself. Here is a wide range for the production of the disease independently of the cases which are produced by diseases of the orbit. No rational physician will expect to cure such a strabismus by myotomy; and the operation can be applicable only when the malposition of the eye is primarily dependent on the muscle, i. e., when there is a shortening of one of the muscles of the eye, which holds the eye to one side and limits its motions towards the other; but even here more than one condition must be laid down.

But unfortunately the necessary basis of the operation, pathological investigation, is at present absolutely and entirely deficient, no one has yet clearly convinced himself on the dead body that a shortened state of the muscle exists in squinting. The operation, however, may itself be made the means of investigating the nature of the disease; and here again, as has been the case with club-foot and wry-neck, surgery may be made the assistant of pathology.

With regard to the true orthopædics of the eye, i. e., its acquiring the right position after the operation, this consists in the constant endeavour and active exertion of the patient, to give his eye the proper direction. A club-foot or a wry-neck would just as soon return to its right position after division of the

tendons without assistance as a squinting eye will. A good method of insuring success is to tie up the sound eye; the eye that has been operated on then always moves to the centre of the orbit, and the longer it is kept there the more likely it is to remain. In few cases will this or some similar measure be unnecessary.

The author also suggests the propriety of endeavouring to make a subcutaneous or rather a subconjunctival division of the muscle, which he believes would avoid all the inconveniences to which the present method is subject. He has performed it on the dead subject and on animals; and has no doubt it may be applied to actual cases of strabismus.

Monatschrift für Medicin, &c. June, 1840.

On certain Abscesses occurring in different parts of the Body, during the course of Diseases of the Urinary Organs. By M. CIVIALE.

M. CIVIALE has observed that, sometimes during the progress of gonorrhœa and other diseases of the urethra, also in affections of the prostate gland and when there is stranguary or dysuria, or foreign bodies in the bladder, certain parts of the body, particularly the extremities and the larger joints, are attacked with pain, which may be dull and diffused, or acute and circumscribed, which is at first generally supposed to be rheumatic, but which terminates in the formation of large abscesses, differing in some respect from common phlegmons. M. Civiale states that these cases have escaped the observation of authors, but says that since his attention has been directed to them he has met with numerous examples. When these accidental pains first make their appearance, the patient complains of a peculiar "*empatement*" (?) and numbness of the part, which come on before any swelling is apparent. These local symptoms are accompanied with lassitude, weakness, anxiety, and general constitutional disturbance which does not correspond at all with the degree of pain, which in the early stages is generally slight and diffused. As the case advances the pain becomes more acute, there is complete loss of appetite and sleep, great prostration of strength, the pulse being sometimes scarcely to be felt; rapid emaciation, dry tongue, troublesome cough, and lastly delirium. The disease often commences with a febrile paroxysm, which may return at regular intervals or be continued. Together with these symptoms the urine is often of a deep orange colour, and is excessively fetid, and when this state of the renal secretion is met with, the case is always very serious. Local redness and swelling of the painful part, with evidence of the formation of matter, frequently do not make their appearance till a late stage of the disease.

One peculiarity in this affection is a tendency in the local disease to shift its position, and it often appears in different places at the same time. The suppuration in distant organs is often accompanied also with the formation of an abscess in the scrotum, perineum, or neighbourhood of the urethra or bladder, which, however, form no communication with the urinary passages.

With regard to the causes of this disease, M. Civiale has not remarked any predisposing circumstances. All the cases occurred in adults. In four there was stricture of the urethra, during the treatment of which affection, (in one case, by cauterization, and in the three others by dilatation,) the abscesses were developed. In a fifth case there was serious disease about the neck of the bladder, and in several others there was urinary calculus, which had been broken down by the operation of lithotripsy. In all the cases there seemed to have been some considerable irritation or inflammation of the urethra, or neck of the bladder, which appeared to give rise to the distant affection.

The peculiar state of the system, accompanied by the formation of these abscesses, is attended with considerable danger, and M. Civiale lost the first two patients which he treated.

The treatment found most efficacious was scarification of the whole of the affected surface in the early stage (from which a reddish or yellow coloured serum is generally discharged for several days in considerable abundance,) and

then the use of emollient poultices. This plan will sometimes cut short the disease, but if the inflammation has reached the deep-seated cellular tissue of the limb between the muscles, this texture becomes indurated, and a vast abscess soon forms; several large deep incisions must now be made completely through the affected parts which will allow of the escape of the matter, and also unload the distended vessels. The surgeon must not always wait for the sense of fluctuation to be apparent, before he makes his incisions, for great relief will be afforded by cutting through the inflamed and indurated tissues before pus has actually been secreted, and the progress of the disease may be thus arrested. M. Civiale does not make any remarks concerning the general or constitutional treatment of the patient, but we presume that this must be conducted on common principles.

Bulletin Gén. de Thérapeutique. Avril, 1840.

*New Operation for the Cure of Vaginal Cystocele. By M. JOBERT,
Surgeon to the Hospital of St. Louis.*

THE following is the substance of a report made to the Royal Academy of Medicine, by a committee consisting of MM. Blandin, Danyan, and Gimelle.

M. Jobert divides his memoir into three parts: in the first, he treats of the history of the disease, and the modes of treatment which have been hitherto employed for its removal. In the second, he proceeds to point out his method of obtaining a radical cure. In the third, he gives some new ideas, based on his pathological researches, with regard to the mode of formation of the cystocele.

Vaginal cystocele was treated of in the work of Leblanc, printed in 1775. Since that time, many surgical authors have noticed it; all have attributed it to a rupture or abrasion of the anterior wall of the vagina, allowing the bladder to pass into the cavity of the former, filling it by its distension, and causing a projection more or less considerable through the os externum. Until lately, palliative means alone have been adopted, which were totally incapable of effecting a radical cure. Pessaries under all forms can be but palliatives.

The well-known operations of Marshall Hall and Dieffenbach have been performed with success by Berard and Velpeau in cases of prolapsus uteri, in which the bladder and vagina have been also drawn down; by these means the displaced parts may be retained within the cavity of the vagina; but in cystocele, M. Jobert says the bladder has an abnormal magnitude, and although it does not project from the vulva, it is nevertheless displaced, resting in such a manner on the perineal surface of the vagina, that the anterior wall of the bladder becomes superior. Thus after the operation just named, though there is not external projection, the organ is not able to regain its ordinary size or position.

M. Jobert considers that in order to effect a radical cure, three things must be done: first, the bladder must be restored to its natural situation; second, the anterior wall of the vagina distended by the tumour must be reduced to its ordinary proportions, so as to maintain the bladder when replaced; but this latter result cannot be obtained by causing a loss of substance in this wall, and reuniting the edges according to the method of Hall, without injuring the orifice of the vulva. The proceeding has also entailed great difficulties in its execution, and possibly severe accidents, therefore the author substitutes, thirdly, the following method: He incloses within two curved transverse lines an oval space, more or less considerable, on the posterior surface of the tumour or the anterior surface of the vagina by means of caustic, so as to form an isolated spot, repeating the application of the caustic until the mucous membrane is destroyed. He then pares the edges with scissors or a bistoury, draws them together, and maintains them in apposition by means of straight needles, the points of which are removed, and a twisted suture.

Jobert operated in this manner on the 23d of July, 1838, on a female aged forty-five, of strong constitution, who presented at the aperture of the vulva a very large cystocele, which elevated the nymphæ and descended above the urethra and clitoris. The tumour was reddish. The patient easily returned and repro-

duced it. She often experienced acute pains in the abdomen, and the tumour became excoriated from friction. She had frequent desire to pass urine, the emission of which was often difficult. The tumour was five inches in length, from the orifice of the urethra to the neck of the uterus, and eight inches in circumference.

Seven needles were applied; four large and three small ones. They were lance-shaped, and were contained in sheaths, which alone were left to retain the threads when the suture was made. One of the large needles was applied to each extremity of the oval, formed by the circumscribed space, two others in the middle, the small ones filling up the intervals. A sound of gumelastic was introduced into the bladder and left there in order to prevent the accumulation of urine, and the distension of the viscus. The reunion of the edges of the wound arrested the flow of blood, and no accident occurred. Four of the sheaths of the needles which retained the sutures were removed on the 3d of August, the others fell of themselves on the 5th and 7th. The sound was discontinued on the 20th of the same month. The woman returned to her occupation as a laundress, and at the end of the month of January, 1839, the time at which she was examined, nothing unfortunate had happened.

Since this time, two other cases presenting the same symptoms as that just related were operated upon in the same manner by M. Jobert, and the result in all the cases has been equally favorable. Two of the committee appointed by the academy were able to testify to this in one case.

But after the cure of these patients, the anterior wall of the vagina underwent a contraction throughout its whole length, and the uterus was proportionally prolapsed. M. Jobert now prevents this inconvenience by applying the caustic in a vertical instead of transverse direction. In this way the vagina is retained, and remains of its full length, the uterus suffering no displacement.

Jobert has shown by his pathological researches that the anterior wall of the vagina is neither ruptured nor abraded in the displacement of the bladder called cystocele, but that this disease is the result of the relaxation of the superior pelvic fascia, which having been distended by the elevation of the womb in successive pregnancies, loses its elasticity and no longer sustains the anterior wall of the vagina after delivery in a proper manner; and in this case, a fall, an effort, the habit of retaining the urine in the bladder for too long a period and in too great a quantity, are causes sufficient to produce the disease.

Jobert performed the same operation with success in a case of eversion of the mucous membrane of the posterior wall of the vagina; and the committee are of opinion that it may be practised in similar states of the same tissue in other natural passages.

Bulletin de l'Académie Royale de Médecine. Mai 15, 1840.

On the Etiology and Treatment of Congenital Luxations and Pseudo-Luxations of the Femur. By Dr. J. GUERIN.

I HAVE established it as a fact, in my History of Deformities of the Osseous System, that the greater number of congenital articular contractions are the product of primitive muscular retraction. I conclude: 1. That congenital luxations of the hip-joint are, like club-foot, torticollis, and spinal deviations, the product of primitive muscular retraction, and that the kind of luxation depends upon the direction in which the retraction happens. 2. There exists an order of deformities of the hip-joint not hitherto indicated, and to which I apply the term *pseudo-luxations*, because they look like luxations, although the head of the bone remains in the cotyloid cavity. These vary as do the complete luxations, and from the same causes. 3. The essential treatment consists in division of the retracted muscles. I have thrice performed this operation with success. The congenital luxations and pseudo-luxations of joints depend in the majority of cases on primitive muscular contraction, which takes place in three different modes: by shortening, by paralysis, and by stoppage

of development of the retracted muscles; and the different varieties of these deformities are, like those of the neck, the spine, and the foot, the effect of this retraction differently distributed in the muscles of these parts. In a girl aged fourteen years, I divided the biceps, semi-tendinous, semi-membranous, and rectus internus, for two incomplete luxations of the knee, produced by primitive retraction of these muscles; on each side there was subluxation of the tibia backwards upon the condyles of the femur, rotation of the limb outwards through the space of about one fourth of a circle, and an inclination outwards of the leg upon the thigh of about sixty degrees. The rotation outwards, the lateral inclination and the gliding backwards of the tibia, were reduced on the day following the operation to the simple normal flexion of the leg upon the thigh, and since that period there remained nothing more than a certain degree of permanent flexion of the joint. In order to convince those who feel any doubt respecting the safety with which these operations may be performed, I may add that, on the same day, I successively divided in the young female above mentioned thirteen muscles or tendons beneath the skin, for the relief of certain deformities from which she suffered; on the following day she felt no kind of pain nor indisposition, nor was there any symptoms of inflammation in any one of the divided parts.

Gazette Médicale de Paris. No. iv. 1840.

Therapeutic Considerations on Obliterations of the Veins in the Treatment of Varix and Varicose Ulcers. By M. JOBERT.

In this paper M. Jobert relates six cases, and states that he could describe twelve others, in all of which the treatment of varicose veins by producing the obliteration of their trunks by needles and twisted sutures, or other means, though at first it seemed promising, had ultimately proved completely unsuccessful. In all the patients who were thus treated the varicose ulcers returned a short time after they left the hospital, as it was believed perfectly cured; and the return took place in these cases more rapidly than in all probability it would if only the ordinary treatment by rest, poultices, and bandages had been pursued.

[After the statement of these facts and those recorded by Bonnet, (Brit. and For. Med. Rev., No. IX, p. 252,) few will hesitate to agree with the author that the obliteration of the veins by the needle and suture, however harmless an operation it may be, is not one which the surgeon has any authority or encouragement in undertaking in the treatment of varicose ulcers. The histories of the cases hitherto published in this country have not extended to the period after the operation at which the fair promises that it affords at first are dispelled.]

Bulletin de Thérapeutique. Mai, 1840.

MIDWIFERY.

Fracture of the Upper Arm of a Child during Birth, by the natural efforts of parturition. By Dr. LÖWENHARDT.

THE mother in this case was twenty-two years old, and it was her first labour. In consequence of slight malformation of the pelvis it was necessary to assist the delivery by the forceps; by their aid and by the moderately powerful and regular contractions of the uterus, the head had passed through the vulva (the face being turned towards the left side of the mother,) when a longer than usual pause between the pains occurred. Presently, however, they returned with considerable force, and the right shoulder, which had before been passing slowly along the perineum, was rapidly expelled; and scarcely had the left shoulder, which was directed upwards and to the right, passed through, when a snap was heard. When the trunk was completely expelled, it was found that the left arm, which lay across the chest, was fractured at the upper third of the humerus. It was put up with paste-splints and a bandage, and union took place.

The author remarks that the case is interesting, in showing that fractures of the upper extremities of new-born children are by no means always produced by awkward manipulation, but under certain circumstances are the effect of the natural process of parturition. That fractures and indentations of the skull may be produced by a projecting promontory, as well as by narrowness of the pelvis, is well known, and the author himself has met with two cases of the kind; but that fractures of the upper extremities may be affected by the act of parturition has not yet, as far as his knowledge extends, been pointed out. In this case the fracture seems to have been produced by the humerus being fixed between two hard bodies, the receding os pubis and the ribs, while the shoulder was being rapidly expelled; and consequently, a fracture of the lower extremity must be much less likely to occur, because, except in a monstrosity, the leg can never be thus impacted between two hard bodies.

Medicinische Zeitung. Mai 6, 1840.

Successful Case of Caesarian Section, with Suture of the Uterus.
By Dr. GODFROY, of Mayence.

On the 27th of March, 1840, Dr. Godfroy was called by M. Renant to a poor woman who had been two days in labour. The term of gestation was stated to have passed over by fifteen days. The patient was of small stature, of a slight and rickety constitution, with that malformation of the hips which gives the peculiar characteristic walk to women so affected. She was married to a man of similar constitution, and her age was forty-two. Dr. Godfroy having passed the entire hand into the vagina, discovered a portion of the cranium in the form of a wedge, the bones of which crossed each other at the sutures. The summit of the head was wedged between the sacro-vertebral angle (which was very prominent) and the pubis, this space not exceeding two inches. Delivery even with the assistance of the forceps being therefore impossible, and the woman beginning to give way under the excessive pains, it was necessary that something should be promptly undertaken. Three modes presented themselves: first to perforate the cranium and remove the trunk piecemeal; secondly, to perform symphysiotomy; and, lastly, the caesarian section. From the peculiar circumstances of the case, the first of these methods seemed fraught with great danger, and the life of the infant being ascertained was another objection. It appeared further impossible to afford a sufficient opening to give play to the forceps by dividing the symphysis, and the caesarian section was therefore attempted. The patient was placed upon a table furnished as a bed, with her head depressed, and her legs raised and everted. Every means being adopted by emptying the bladder, &c. to render the skin lax and fix the uterus, the operator made a vertical incision from the umbilicus almost to the pubes. The integuments having been divided tissue by tissue, the peritoneum was opened cautiously, and lifted up while the incision was prolonged upwards and downwards. The folds being turned back, the uterus was carefully opened about the median line. The placenta was fixed to the anterior part of the uterus, and was readily recognized, seized, and withdrawn by the hand. The infant was very carefully removed by the feet and the umbilical cord divided; the child uttered a cry and was saved. Its weight was about six pounds and a half. No vessel required tying. The uterus was held near the abdominal orifice and cleaned, and then being left to itself contractions immediately came on, and all hemorrhage ceased. The wound in the uterus, however, did not readily unite, but left a considerable space between the edges. Some points of suture were therefore applied by means of common needles, armed with double waxed threads, and passed through the whole thickness of the wound. The reunion was perfect, and then the uterus was entirely abandoned. The abdominal orifice was closed in a similar manner through the whole thickness of the integuments, even including the peritoneum. The edges were perfectly united, except at the lower part, where a small orifice was left for any suppuration which might ensue. Charpie and a strong bandage being applied, the patient was placed in bed with her head and knees elevated.

Some slight fever arose, and the patient was twice bled. During the two succeeding days the usual sanguinolent evacuations issued from the vulva. The dressings were removed on the 1st of April, and were found scarcely soiled by suppuration. Fresh charpie, steeped in cream, was applied and left till the 6th, when the union appearing firm, the threads of the sutures were all divided and the wound simply dressed till the 24th, when there existed no trace of suppuration. There was no fever, and the patient left her bed on that day, taking care to sustain the cicatrix with a bandage. The cure was perfect.

M. Desormeaux and others have strongly objected to the sutures of the uterus. Dr. Godfroy thinks their danger has been exaggerated. At all events, the rapidity of the cure in this case without the occurrence of any accident is very remarkable.

Gazette Médicale. 11 Juillet, 1840.

Case of Puerperal Fever, with unusual Sloughing. By Dr. LÖWENHARDT, of Prenzlau.

THE patient was a woman thirty-four years old, previously healthy and strong, who was delivered with the forceps on the 12th of November. Her five previous labours had been natural, and nothing dangerous had occurred in them, except that after the last she had had severe peritonitis.

On the 15th of November all the symptoms of peritonitis, which appeared to be especially severe in the hypogastric region, came on after exposure to cold. On the 16th and 17th she was largely bled three times, and numerous leeches were applied; purgatives and calomel and opium were also administered, but no relief was afforded. Large mercurial inunctions were then added, but the mouth was not at all affected, and the symptoms grew daily worse. On the 21st no benefit having yet resulted from the treatment, she took thirty drops of the oil of turpentine. It produced considerable pain and heat in passing urine, but on the next day there appeared to be a slight improvement in both the general and local symptoms.

On the morning of the 23d, however, though the general condition of the patient seemed to be improved, the author found a gangrenous spot as large as the palm of the hand, three inches below the umbilicus, and on cutting into it to a depth of two inches he discovered that not the slightest pain was produced. A part of the slough was removed, and pyrolignous acid, with a decoction of bark and aromatics, was ordered to be applied. Bark was also given internally with muriatic acid.

The sloughing however continued, and on the 27th it was found necessary to remove a portion of the abdominal walls, as large as the whole hand. On the day after, an opening formed into the intestine on the left side, where the sloughing extended most deeply, and a large quantity of fecal matter was discharged through it.

The patient, who had previously appeared stronger than might have been expected, now became much depressed, and as the constant fecal discharge through the wound maintained a permanent irritation, it was determined to try to close the opening into the intestine. The operation undertaken for this purpose was however unsuccessful; the intestine was found to be perforated in at least three places, and no mode of remedying its condition could be imagined. The patient became gradually more and more weak; on the 7th of December a considerable hemorrhage from the uterus occurred, and she died a few hours after.

On examination there was found at the aperture where the sloughing had passed through the abdominal walls, an excessively thickened inflamed and partly gangrenous layer of peritoneum, and beneath this the immensely swollen omentum, to which about six inches of small intestine were adherent. In this portion of intestine, which was highly inflamed, there were three apertures, of which the largest was about two inches and a half long, and was directed towards

the left ilium; a second opened to the right and upwards; and a third, of an inch diameter, was situated at the lower part of the intestine. Their edges were uneven and swollen, but appeared cicatrizing.

Casper's Wochenschrift. Mai 16, 1840.

On Phlebitis Hepatica Neonatorum. By Dr. SCHÖLLER, Assistant Physician at the Obstetric Clinic, Berlin.

THE first case related by Dr. Schöller is that of an infant, healthy for the first nineteen days of its life, when, after exposure to cold, it refused the breast, the bowels ceased to act, the abdomen became painful and tympanitic, the child vomited a greenish fluid and died within twelve hours after it showed the first signs of indisposition.

On a post-mortem examination were found a puriform effusion in the abdominal cavity, and thick layers of lymph coating the stomach, spleen, omentum, and colon. At the point where the vena portæ, and vena umbilicalis enter the liver, they were surrounded by thick layers of yellowish fibrine. On opening the vena portæ thick pus exuded, and the walls of the vessel, even in its finest ramifications, were so much thickened as to communicate to the liver considerable firmness when divided. The gall-bladder was pale, and contained a greenish mucous fluid. The spleen was pale and friable. The intestines were full of a green fluid, similar to that which the child had vomited during life.

In the second case the disease ran a still more rapid course. A female child was strong and healthy up to the twentieth day after its birth. It then refused the breast, its respiration became hurried and gasping, the abdomen hard and painful, and the child vomited a greenish fluid. The same evening trismus and convulsions came on and recurred at intervals, till, in the course of the night, the child died. An examination disclosed extensive peritonitis with effusion into the abdominal cavity, and the umbilical and portal veins were thickened and distended with pus.

On the right side was an inguinal hernia, the sac of which extended into the labium, and contained the red and swollen Fallopian tube. The unusual shortness of the round ligament of the right side seemed to have been the cause of the hernia of the tube; for the uterus had been drawn by the round ligament so forcibly to the right side as to give to its long axis an oblique direction.

Neue Zeitschrift für Geburtskunde. Band vii.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

On Poisoning by Antimonial Vapours. By Dr. LORMIER, of Schönebeck.

THE subjects of this peculiar affection were four in number. The history of the first is as follows:

D. W. E. F. was affected in 1838 with tightness in the chest and slight pain of the head. The former symptom increased to pain, and at last to severe stitches passing transversely through the chest to the shoulders and the back, to which there was also added a severe dry and painful cough. With these symptoms the pain of the head, which was at first but slight, acquired an agonizing severity, with stabbing and burning sensations especially at the back of the head and the neck, and with swelling of the cervical glands. The dry painful cough at last produced a difficult expectoration, while in respiration a rhonchus and sibilus were constantly audible. At night a tormenting restlessness kept the patient awake; and this soon passed into complete watchfulness; or, if he fortunately had a short sleep, he fell into a distressing colliquative sweat which was followed by great faintness. The appetite diminished from the very commence-

ment of the illness, and diarrhoea came on with griping pains in the abdomen. The diarrhoea was troublesome and frequent; the food was evacuated undigested soon after eating; and the abdomen was enlarged and tense. There were pain and difficulty in making water, and at last the passage of the urine was always accompanied by strangury and pain at the neck of the bladder, and burning sensations in the urethra, from which a few drops of a liquid mucus sometimes flowed. Pains in the testicles were felt, and there was a loss of the desire for the exercise of the sexual propensity, which went on to actual impotence; and the patient observed a remarkable shrinking of the penis and an actual diminution in the size of the testicles.

The cases of the three other patients are so nearly similar to the above that they need not be detailed. After describing them, Dr. Lohmeier proceeds: These histories had so much similarity that one and the same cause of disease in all the patients might fairly be anticipated; and it was the opinion of one of them who, like the others and some more who they said were similarly affected, had been occupied at the time of his illness in making antimonial preparations on a large scale, that the vapours given off during the process were the cause of his disorder. The idea, however, was not followed out till the same patient having almost entirely recovered from his first attack, but being still annoyed by pains, found them suddenly break out again into more severe symptoms on being exposed to the vapours developed in preparing a large quantity of tartar-emetic.

The author was now induced to enquire more accurately into the origin of these affections, which both by their history and their symptoms appeared so strongly indicative of the influence of some irritating poison. He found that one of the patients, D. W. F., at the time of his illness had been engaged for fourteen days successively in the manufacture of metallic antimony, by melting algaroth-powder with fluxes composed of salts of potash and soda, at first in crucibles and afterwards in a small blast furnace. He melted every day about a hundredweight of metal, which was done in from four to six meltings, according to circumstances; and he had to test it during the time, and looked after the stirring of it himself. During this process vapours of antimonious and antimonie acids, and of oxyde of antimony are given off, from those substances being mixed with each quantity of the algaroth-powder that is thrown into the furnace.

G. H., another of the patients, had the management of solutions of antimony in hydrochloric acid in an open cast-iron cauldron, in which vapours of hydrochlorate of antimony (butter of antimony) were formed.

J. F., the third patient, was engaged in the same work with the last; and K. J., the fourth, was constantly occupied in preparing first the *vitrum antimonii*, and afterwards the artificial sulphuret, which is made by melting together sulphur and metallic antimony; in both of which processes vapours are given off containing antimonious and antimonie acids and oxyde of antimony.

There could, therefore, be no doubt that the peculiar and severe symptoms produced in these cases were the result of the absorption of the different compounds of antimony in the form of vapour. The remainder of the very interesting paper is occupied by the author's speculations respecting their mode of reception into, and action upon, the system; and by his suggestions for the prevention and the cure of the injurious effects to which they give rise. For the latter purpose he recommends local bleedings from the neighbourhood of the parts chiefly affected, and the concurrent administration of tonics, especially bark, which he presumes must exercise a chemical influence on the poison. For the prevention of poisoning no other than the usual means, such as powerful draughts of air for the removal of the vapours as fast as they are given off, seem to be necessary.

Casper's Wochenschrift. April und Mai, 1840.

CHEMISTRY.

Mode of discovering Adulteration of Essential Oils with Alcohol.

By M. BORSARELLI.

M. BORSARELLI introduces the essential oil into a cylindrical tube about one inch in diameter and four in length, closed at one end. The tube is to be about two thirds filled with the oil. He then introduces small pieces of chloride of calcium, very dry and free from dust, closes the open end of the tube with a cork, and places it for four or five minutes in a water-bath heated to 100°, occasionally shaking it. The tube is then allowed to cool gradually, and if the oil contain any considerable quantity of alcohol the chloride is entirely dissolved, forming two distinct layers—the superior is the essential oil, the inferior the alcoholic solution of chloride of calcium. If the oil contain but a very small proportion of alcohol the calcareous chloride effloresces, loses its form, and becomes a white mass which adheres to the bottom of the tube. Finally, if the oil contain no alcohol, the chloride not only does not dissolve but retains its proper form.

The same process may be employed to discover the proportion of alcohol mixed with æther, remembering, however, to use a longer tube and not to cork it too tightly.

Bulletin Général de Thérapeutique. 30 Juin, 1840.

STATISTICS.

Longevity in Russia.

IN the government of Kasan there were, among the old people who died in 1839, 5 of 100, 7 of 101, 3 of 102, 3 of 103, 2 of 104, 3 of 105, 1 of 107, 2 of 108, 1 of 112, and 2 of 115 years old. In the government of Woronesch, there were 33 of 100, 11 of 105, 3 of 110, 3 of 115, and 2 of 120.

Zeitschrift für die gesammte Medicin. June, 1840.*Mortality of St. Petersburg.*

AN evident proof of the unhealthiness of the climate and mode of living of St. Petersburg is supplied by the extracts from the church books respecting the numbers born and dead in the foreign religious communities in the city, in the course of the year 1839. (The Greek church, Mahomedan, and Armenian congregations are excepted.)

	Born.			Dead.		
	Males.	Females.	Total.	Males.	Females.	Total.
St. Anne's Community -	148	128	276	130	124	254
St. Catharine's -	155	131	286	158	133	291
St. Peter's -	101	89	190	160	158	318
Cadets -	50	41	191	55	48	103
Engineer Cadet corps -	5	10	15	7	6	13
Swedes -	61	60	121	108	101	209
Finlanders* -	104	113	217	285	227	512
English -	22	35	57	24	23	47
German Reformed Church -	32	34	66	30	26	56
French Reformed Church -	2	6	8	5	3	8
Dutch -	2	5	7	3	3	6
Estonische -	24	20	44	97	50	147
Roman Catholics -	133	117	250	127	103	230
Total	839	789	1628	1189	1005	2194

Zeitschrift für die gesammte Medicin. June, 1840.

* The Finlanders come in great numbers to be apprenticed at the various manufactories, and very frequently die of phthisis about the time of puberty.

Danish Medical Statistics.

In the *Danish Medical Library* for January, February, and March, of the present year, there are copious extracts from the Transactions of the Royal Society of Health for 1839. The first is an account of the prevailing diseases in Denmark, with the exception of Laaland and Falster, during the year 1838. These are smallpox, scarlet fever, measles, catarrhal complaints, typhus, which has been very prevalent, rheumatic fever, puerperal fever, psora, syphilis, croup and whooping-cough, which last, after an absence of sixty years, has reappeared among persons of all ages in the Farø Isles. We are also informed that in the same year (1838) 18,813 persons were vaccinated in the whole kingdom for the first time, and 1052 were revaccinated. That in Iceland 481 were vaccinated for the first time, and 647 were revaccinated.

The tables of births and deaths are not very precise. The number of accidental deaths and suicides, strangely enough united together, was 514.

Bibliothek for Læger. Jan. Feb. Murch, 1840.

II. THE BRITISH JOURNALS.

(FOR THE QUARTER ENDING AUGUST 31, 1840.)

EDINBURGH MEDICAL AND SURGICAL JOURNAL. JULY, 1840. No. 144.

Observations on the Diseases of Peru. By ARCHIBALD SMITH, M.D.

THIS is the conclusion of the paper noticed in our last Number. It contains some interesting details, particularly on the influence of climate and locality on hæmoptysis and phthisis.

Cases of Great Enlargement of the Stomach; with Remarks.

By J. H. PEEBLES, M.D., Physician to the Edinburgh Infirmary.

THIS is a monograph consisting chiefly of a collection of cases from various authors. It will be useful for reference to the practical physician.

Cases of Deformity of the Feet cured by the Operation of Stromeyer.

By ROBERT THOMSON, Esq., Surgeon, Dundee.

THE author here gives the results of fifteen cases, seven of which are detailed at length. The treatment was highly creditable to Mr. Thomson, and his paper merits the notice of surgeons.

On Anomalous Affections of the Respiratory Organs.

By JOHN GARDNER, M.D., Edinburgh.

CASES of this kind must be familiar to practitioners of experience in hysterical females of feeble frame, and who are often said to be the subjects of spinal irritation. Dr. Gardner calls attention to the employment of blisters to the nape of the neck, as found useful in such cases; and he suggests the same remedy, on theoretical principles but from a fair analogy, in whooping-cough and laryngismus stridulus.

On Nervous Headach from Exhaustion, and its Treatment with Aconite.

By T. H. BURGESS, M.D.

DR. BURGESS notices two conditions of system in which nervous headach is apt to ensue; one of general anemia; the other debility from nervous exhaustion. In these, and also in other kinds of headach, he has found the extract of aconite, in doses of rather less than a grain given every two or three hours, very useful.

On the Action of Hydrated Sesquioxide of Iron on Arsenic.

By DOUGLAS MACLAGAN, M.D. &c.

THIS is a valuable paper, and confirms the results previously arrived at of the antidotal powers of this salt of iron. Dr. MacLagan further proves that the salt acts chemically on the arsenious acid. He is of opinion that it is better fitted for removing the arsenic from its solution when precipitated by ammonia than when precipitated by potash, and that it answers better when preserved moist.

DUBLIN JOURNAL. JULY, 1840.

On Cod-oil. By M. DONOVAN, Esq.

THIS has been a good deal used on the continent of late years as a remedy in scrofula, (see Br. and For. Med. Review, vol. VIII. p. 554, and vol. IX. p. 553), and with supposed benefit. The present paper is valuable in showing how this medicine can be rendered palatable, which is effected by using a temperature in its expression not exceeding 192°. But Mr. Donovan's paper merits perusal.

On the Utility of the Orymuriate of Mercury in the Strumous Ophthalmia.

By JOHN HAMILTON, Esq.

IN addition to the usual local remedies, Mr. Hamilton employs with the greatest advantage this preparation of mercury internally, in doses of from one sixteenth to one eighth of a grain, in Tinct. or Decoct. Cinch., twice a day. This practice he borrowed from Sir P. Crampton, who learned it from Dr. M'Evoy. Mr. Hamilton gives several cases illustrating the great efficacy of the treatment.

On the Hydrocyanoferrate of Quinina; a febrifuge of greater power than the Sulphate.

By M. DONOVAN.

THIS remedy has been employed in Italy, and is said to answer where the ordinary salt fails. Mr. Donovan gives formulæ for the preparation and administration of the remedy.

DUBLIN MEDICAL PRESS. JUNE—JULY—AUGUST, 1840.

Direct Application of Galvanism to the Diaphragm in Suspended Animation.

By J. FERGUSON, M.D., Mullingar.

A man, who had been intoxicated when immersed, was taken out of a canal after being six or seven minutes under water, cold, livid, and lifeless. After discharging the contents of the stomach by the pump, the conductors of a galvanic battery of fifty plates were applied immediately to the diaphragm through an incision made below the seventh rib. The muscles of the chest and abdomen were instantly thrown into spasmodic action, but this subsided in a few minutes into the regular movements of respiration. Recovery ensued. July 1.

On the Means of distinguishing real from apparent Enlargement of the Eyeball in cases of Hydrophthalmia and Exophthalmia. By JAMES O'BEIRNE, M.D., Dublin.

THE following are the conclusions to which Dr. O'Beirne's examination of the subject leads: "In Hydrophthalmia the eye is completely uncovered; in Exophthalmia it is more covered than usual. In the former, the upper eyelid is parted upwards, but unchanged in all other respects; in the latter it hangs lower than usual, is more or less paralytic, and its surface is of a dusky-red colour and traversed by several enlarged veins." Aug. 26.

LANCET. JUNE—JULY—AUGUST, 1840.

Division of the Internal Rectus Muscle in Cases of Squinting.

By P. BENNETT LUCAS, Esq.

OPERATED in thirty-two cases, all successful but two. July 4.

On the Causes and Treatment of Strabismus. Summary of Seventy-six Operations by Mr. Liston. By W. R. ANCRAM, Esq.

ALL Mr. Liston's operations were successful, in the first instance, except four; and three of these cases were cured by a second operation; the fourth would not submit to a second operation. July 18.

Case of Hemiplegia, in which voluntary power was entirely lost, and reflex movements could be readily excited. By W. F. BARLOW, Esq.

AN interesting case. July 25.

Gangrene of the Mouth successfully treated by the Actual Cautey.

By HENRY OBRE, Esq., House-surgeon to the Marylebone Infirmary.

TWO cases; one cured. *Ibid.*

Three Cases of Strabismus cured by Operation. By A. T. LIGHTFOOT, Surgeon, Newcastle on Tyne Aug. 1.

New Mode of Operating for the Cure of Squinting. By D. ROSS LIETCH, Esq., Surgeon, Tynemouth. *Ibid.*

Cases of Strabismus cured by Operation; with Observations.

By P. BENNETT LUCAS, Esq.

THREE more cases, thirty-eight in all, operated on by Mr. Lucas. Aug. 8.

Abandonment of the Hook in the Operation for Squinting.

By J. G. FRENCH, Esq.

THREE cases operated on. Aug. 8.

New Hook for the Operation of Dividing the Internal Rectus Muscle of the Eye.
By J. J. ADAMS, Esq.

THIS is passed beneath the rectus at its narrowest part, and thus brings the muscle perfectly into view for incision. *Ibid.*

On the Use of Sulphur in some Spasmodic Affections, particularly Angina Pectoris.
By W. MUNK, M.D., Physician to the Tower Hamlets Dispensary.

MARKED benefits in two cases from the use of sulphur internally, 3ss-ʒj. once or twice daily. *July 18.*

On the Use of Sulphur in Rheumatic Affections. By CHARLES CLAY, Esq.,
Surgeon, Manchester.

MR. CLAY has for several years found sulphur a valuable remedy in chronic rheumatism, used internally; and he as well as Dr. Chapman, quoted by Dr. Munk, has found its external use beneficial in the same disease and in muscular spasms. The remedy clearly deserves more notice than it commonly receives. *Aug. 22.*

On the Operation for Squinting. By GILBERT MACKMURDO, F.R.S., &c.

MR. MACKMURDO recommends the use of the blunt hook of Mr. James Adams, which enables the operator to secure the muscle at its narrow part, and to avoid the necessity of a large incision in the conjunctiva; also the sharp acute hook of the same gentleman for fixing the eye. *Ibid.*

On a New Form of Sharp Hook for fixing the Eye during the Operation for Strabismus. By JAMES J. ADAMS, Esq.

THE peculiarity of this hook consists in the acuteness of turn of its sharp point, whereby pressure on the ball of the eye is avoided. *Ibid.*

On Deafness and Dumbness produced by the Use of Quinine.

IN addition to several cases published before, others are related by Dr. JOSEPH WILLIAMS (July 25) and Mr. C. R. BRER (Aug. 22). The remedy had been given in large doses.

LONDON MEDICAL GAZETTE. JUNE—JULY—AUGUST, 1840.

Observations on the Occurrence of Cerebral Disorders, in connexion with Diseased Kidneys in Children. By GOLDBING BIRD, M.D.

THIS is a brief but valuable essay. In it the author carries out the views of Drs. Bright and Addison respecting the connexion between disease of the kidney and cerebral affections, and shows by the detail of two cases, the "possibility of detecting the existence of renal disease, even in very young children, by the character of the cerebral symptoms." *June 5.*

On the Situation of the Deciduous Membrane in Cases of Extra-uterine Gestation.
By ROBERT LEE, M.D., F.R.S.

THE object of this short paper is to prove, by the relation of two cases of extra-uterine pregnancy, "that the decidua is not formed within the uterus in all cases of extra-uterine gestation." as had been generally supposed. In the two cases related, as also in one other quoted from Chaussier, the deciduous membrane was seen distinctly surrounding the ovum in the Fallopian tube. *June 5.*

Case of Sero-cystic Tumours of the Breast removed by Operation; with observations on the propriety of operating in states of prostration from extreme apprehension.
By J. B. CURLING, Esq.

THIS interesting paper proves, by the relation of two cases, that even in extreme prostration of strength, capital operations may be performed with safety, and that they even act sometimes as a stimulus in rousing the energies of the system. We would, however, advise no young surgeon to incur the hazard of the dreadful alternative too probable in such circumstances. *Ibid.*

On the Effects of Dividing the Inner Straight Muscle of the Eye for Strabismus.
By HERBERT MAYO, Esq.

A description of the condition of the eye six weeks after the operation. The eye operated on looks larger than the other, "from the action of the two oblique muscles not being now sufficiently antagonized." *Ibid.*

On the Influence of Woollen Manufactures on Health.
By J. B. THOMSON, Surgeon, Tillicoultry.

THE author mentions, as a well-known fact, the extreme healthfulness enjoyed by the children in woollen factories, which form so striking a contrast with the state of health in cotton factories. He also adopts the popular explanation of the fact, viz., "the quantity of oils they are commonly using" in the former. The subject is curious and important, and deserves more particular investigation. *June 12.*

On Dividing the Internal Rectus Muscle for the Cure of Strabismus.
By E. J. SCOTT, M.D., Portsmouth.

A successful case operated on after the manner of Mr. Lucas. *Ibid.*

Cases of Strabismus. By A. FRANZ, M.D.

THREE cases successfully operated on after Dieffenbach's method. *Ibid.*

On congenital Peculiarity in the Structure of the Heart, as influencing the Diagnosis of Cardiac Affections. By C. M. DURRANT, M.D., Ipswich.

THIS short paper will help to abate some of the difficulties of young practitioners in treating heart affections, and therefore merits perusal. It points out what every practitioner of experience knows, "that the changes arising from natural structural peculiarity often produce many of the physical signs of real disease of the organ." *June 19.*

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On the Statistics of Smallpox. By GEORGE GREGORY, M.D.

THIS short but interesting document gives a comparative view of the experience of Dr. Heim in Wirtemberg, and that of the author in London. Several interesting results are thus obtained: 1, that second attacks of smallpox are ten times more prevalent in Wirtemberg; 2, that the proportion of persons vaccinated is much greater in Germany than in England; 3, that the rate of mortality from primary smallpox is 36 per cent. in London, and only 20 per cent. in Germany; and 4, that the mortality of the disease after vaccination is precisely the same in both countries, viz., 7 per cent. *June 19.*

On the Treatment of Croup. By A. J. HANNAY, M.D., Glasgow.

THE principal and praiseworthy object of this paper is to relate the author's entire failure in the treatment of croup by sulphate of copper, a remedy recommended in an early Number of this Journal on the authority of Dr. Zimmerman. Dr. Hannay recommends, as what he has found the most successful treatment, a combination of opiates with antimonial emetics early in the disease. *July 3.*

Cases illustrative of the Poisonous and Injurious Effects of the Hydriodate of Potash and Iodide of Starch. By J. A. LAWRIE, M.D., Glasgow.

SEVEN cases are related, two of which were fatal, and the symptoms in most of the instances seen traceable to the medicine. The principal effects were affections more or less severe of the mucous membrane of the air passages, eyes, &c. with spasmodic dyspnoea, and in two cases laryngitis, intense headach, salivation, &c. The results bore no proportion to the amount of the dose, and therefore probably depended on peculiarity of constitution. At any rate they claim the earnest attention of practitioners. *Ibid.*

Curious Case of Pin Swallowing. By H. BIRT, Esq., Surgeon, of Ashington, Sussex.

A girl of weak intellect, æt. twenty-three, came under the author's care in July, 1839. Before this time a surgeon had extracted twenty-seven pins from the left mamma, and in the course of four months Mr. Birt extracted 254 pins and needles (making in all 281) from almost every part of the left side of the body. The girl had been in the habit of swallowing pins and needles out of bravado or from the bribe of sweetmeats when at school almost thirteen years before. *July 9.*

Two Cases of Squinting. By A. FRANZ, M.D.

TWO cases, requiring division of the superior oblique after that of the inner straight muscle; both cured. *July 24.*

On the Use of Strychnine in Neuralgia. By J. PIDDUCK, M.D., London.

SIX cases of neuralgia, in its more ordinary forms and in that of sciatica, are related, in all of which a cure seemed to be speedily effected by the use of strychnia in doses of one twelfth of a grain thrice daily. *Aug. 7.*

On the Operation for Strabismus. By J. G. FRENCH, Esq.

MR. FRENCH objects to the use of the sharp hook of Dieffenbach in fixing the eye, and uses the forceps to do this and elevate the conjunctiva for incision. Mr. French has performed the operation thrice. *Ibid.*

PART FOURTH.

Medical Intelligence.

TABLE OF MORTALITY FOR LONDON,

FOR THE SECOND QUARTER OF 1840:

Showing the number of Deaths from all causes registered in thirteen weeks, from the 4th April to the 27th June, 1840.

Causes of Death.	APRIL.				MAY.					JUNE.				Total.
	Week ending				Week ending					Week ending				
	4th	11th	18th	25th	2d	9th	16th	23d	30th	6th	13th	20th	27th	
CLASS I.														
Smallpox	7	11	6	6	15	13	18	15	15	10	22	11	12	161
Measles	14	13	21	20	21	19	17	18	16	22	20	33	36	270
Scarlatina	45	34	36	36	35	42	46	36	39	33	40	31	36	491
Whooping-cough	16	17	30	33	26	25	25	11	20	28	26	14	21	292
Croup	8	9	5	9	9	7	9	8	6	5	9	4	6	94
Thrush	4	1	3	2	9	4	4	3	3	4	3	8	11	59
Diarrhoea	2	2	0	5	4	6	2	2	2	7	9	4	8	53
Dysentery	1	1	1	0	0	0	1	0	1	2	1	1	2	11
Cholera	1	0	0	0	0	0	0	1	1	0	1	0	0	4
Influenza	1	2	0	0	2	0	0	0	2	1	2	1	1	12
Typhus	30	23	31	30	25	41	28	25	26	21	23	19	23	345
Erysipelas	9	7	5	6	5	5	7	7	4	6	5	6	7	79
Syphilis	1	1	0	0	0	0	0	1	0	0	0	0	1	4
Hydrophobia	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total Epidemic, &c.	139	121	136	147	151	162	157	126	135	139	161	133	167	1676
CLASS II.														
Cephalitis	11	9	10	7	14	19	15	12	10	15	17	10	11	160
Hydrocephalus	36	36	41	46	32	36	37	39	32	30	29	32	31	459
Apoplexy	23	18	12	17	12	20	17	17	11	12	8	14	17	198
Paralysis	24	18	14	11	23	4	18	13	19	12	8	15	9	188
Convulsions	51	56	74	65	41	50	54	43	49	65	54	62	67	731
Epilepsy	6	5	6	4	6	6	3	2	5	3	4	1	5	56
Insanity	3	0	0	1	0	1	1	3	0	0	2	0	1	12
Delirium tremens	2	0	3	1	4	2	1	1	1	3	3	0	6	27
Diseases of the brain, &c.	13	4	6	13	5	6	5	7	11	6	10	5	10	101
Total Dis. of Brain, &c.	169	146	166	165	134	148	152	137	138	146	136	129	157	1932
CLASS III.														
Quinsey	5	2	1	0	4	0	5	0	0	0	0	0	1	18
Bronchitis	11	7	15	14	8	10	8	7	7	7	8	6	3	113
Pleurisy	3	2	1	0	1	4	1	1	1	3	1	2	0	20
Pneumonia	85	68	74	78	28	66	67	52	69	49	54	54	54	862
Hydrothorax	6	3	3	4	5	5	5	3	3	6	3	4	4	54
Asthma	35	23	33	20	15	16	17	15	10	10	10	8	8	220
Consumption	145	150	149	144	131	148	123	130	147	137	128	147	145	1833
Diseases of the lungs, &c.	20	17	13	14	10	13	12	12	12	11	13	8	9	165
Total Dis. of Lungs, &c.	310	281	289	274	266	262	238	220	250	223	217	231	224	4296
CLASS IV.														
Pericarditis	0	1	0	0	1	0	0	0	1	1	1	0	0	6
Aneurism	1	2	0	2	2	0	0	0	1	2	1	2	1	14
Diseases of the heart, &c.	19	22	20	17	15	12	16	20	19	16	18	16	16	226
Total Dis. of Heart, &c.	20	25	20	19	18	12	16	21	21	19	20	18	17	246

Causes of Death.	APRIL.					MAY.					JUNE.					Total.
	Week ending					Week ending					Week ending					
	4th	11th	18th	25th	2d	9th	16th	23d	30th	6th	13th	20th	27th			
CLASS V.																
Teething	13	14	21	15	18	21	17	15	13	12	17	17	11	204		
Gastritis, enteritis	11	16	11	11	13	10	20	17	13	20	22	19	20	283		
Peritonitis	1	3	2	1	3	0	0	1	0	1	0	0	3	15		
Tabes mesenterica	4	6	4	5	7	4	5	5	0	0	5	7	4	56		
Ascites	0	0	0	2	0	0	2	1	2	2	0	0	1	10		
Ulceration	3	0	0	1	1	1	1	0	1	1	3	0	0	12		
Hernia	3	2	0	5	3	1	1	6	1	2	2	2	3	30		
Colic or ileus	0	1	1	2	0	3	1	2	1	1	2	1	0	15		
Diseases of the stomach, &c.	2	7	9	3	9	3	10	6	8	5	2	4	3	71		
Hepatitis	0	0	2	0	1	0	0	1	1	1	0	0	1	7		
Jaundice	3	2	3	2	1	2	0	0	0	3	1	3	2	22		
Disease of the liver, &c.	4	9	2	10	6	4	9	8	11	6	10	7	6	92		
Total Dis. of Stomach, &c.	44	60	55	57	62	49	66	62	51	54	64	60	53	737		
CLASS VI.																
Nephritis	0	0	1	0	0	0	0	0	0	0	1	1	1	4		
Diabetes	0	0	0	0	1	0	2	1	0	0	0	0	0	4		
Stone	0	0	1	1	2	0	1	0	1	0	0	0	0	6		
Stricture	0	2	0	0	0	0	0	0	0	0	0	0	0	2		
Diseases of the kidneys, &c.	2	3	1	3	5	3	3	3	6	4	2	1	4	40		
Total Dis. of Kidneys, &c.	2	5	3	4	8	3	6	4	7	4	3	2	5	56		
CLASS VII.																
Childbed	5	6	5	7	7	5	4	4	9	3	5	6	5	71		
Ovarian dropsy	0	0	0	0	0	0	2	0	1	0	0	1	0	4		
Diseases of uterus, &c.	6	0	1	2	2	0	1	1	2	2	1	3	0	21		
Total Dis. of Uterus, &c.	11	6	6	9	9	5	7	5	12	5	6	10	5	96		
CLASS VIII.																
Rheumatism	4	3	2	4	2	2	3	6	1	3	2	3	0	35		
Diseases of joints, &c.	2	4	5	4	1	2	7	6	2	8	4	2	6	53		
Total Dis. of Joints, &c.	6	7	7	8	3	4	10	12	3	11	6	5	6	88		
CLASS IX.																
Ulcer	0	0	0	0	0	0	0	0	0	0	1	0	2	3		
Fistula	0	1	1	1	0	0	2	1	0	1	0	0	0	7		
Diseases of skin, &c.	0	0	0	1	0	0	1	0	0	0	0	1	0	3		
Total Dis. of Skin, &c.	0	1	1	2	0	0	3	1	0	1	1	1	2	13		
CLASS X.																
Inflammation	11	6	4	7	8	6	5	7	11	6	1	6	4	82		
Hemorrhage	2	3	4	4	5	5	5	4	3	3	1	1	4	46		
Dropsy	43	30	32	36	29	31	37	25	34	30	35	33	37	432		
Abscess	2	4	7	3	7	8	8	7	3	6	4	5	2	66		
Mortification	8	5	7	6	2	2	4	8	5	5	6	2	6	75		
Scrofula	3	4	2	2	4	3	1	0	2	4	3	5	2	35		
Carcinoma	7	10	9	5	6	8	12	6	9	3	10	8	6	99		
Tumour	1	1	3	2	0	2	1	3	1	2	4	2	1	23		
Gout	1	2	1	1	2	0	1	1	1	1	0	0	0	11		
Atrophy	7	3	2	5	3	5	2	5	5	11	3	4	12	72		
Debility	33	9	18	18	17	18	27	21	18	15	20	19	21	254		
Malformations	0	1	2	1	0	0	2	0	0	2	3	0	1	12		
Sudden death	27	9	6	16	16	7	15	15	13	16	19	10	14	183		
Total Dis. of Uncertain Seat.	145	87	97	106	104	101	120	102	106	104	111	96	110	1330		
CLASS XI.																
Old age or natural decay ..	72	85	68	67	62	58	62	49	54	56	56	54	42	803		
CLASS XII.																
Intemperance	0	0	1	0	1	1	0	0	0	0	2	0	0	5		
Privation	0	0	0	0	0	1	0	0	0	1	0	0	0	2		
Violent deaths	48	25	31	28	25	21	15	17	16	21	36	19	32	339		
Total by Violence, &c.	48	25	32	28	26	22	15	17	16	22	36	21	32	357		
CLASS XIII.																
Causes not specified	4	2	3	2	4	3	1	0	0	1	3	2	2	27		
Total Deaths from all causes	976	651	685	688	653	630	633	766	795	795	819	771	804	10005		

NUMBER OF DEATHS IN THE DIFFERENT DISTRICTS.		
Districts.	Estimated Population in 1840.	Deaths during the Quarter.
West Districts	308,921	1738
North Districts	414,458	3029
Central Districts	309,732	2112
East Districts	411,634	2256
South Districts	450,265	2751
Total (Males 5716, Females 5170) ..	1,965,000	10,886

THE THACKERAY PRIZE.

THE prize of fifty pounds placed at the disposition of the Provincial Medical Association, by Dr. Thackeray, of Chester, was awarded, at the late meeting at Southampton, to Dr. WILLIAM DAVIDSON of Glasgow, for the best essay "ON THE CAUSES AND MODE OF PROPAGATION OF CONTINUED FEVER."

We are happy to have it in our power to announce to our readers, that the author has kindly placed this very valuable essay at our disposal, and it will appear as a SUPPLEMENT to our next Number.

THE RESPIRATOR.

IN an early Number of this Journal, (Vol. III., p. 492,) we gave a favorable report of this ingenious instrument; but as it was then a novelty, we spoke rather anticipately from the evidence of the principle of the instrument, than from any real experience of its value. Three years having passed since then, and the instrument having been during that period in very general use, we are now enabled to speak more positively of its effects. Indeed, these have been observed by so many medical men, and, we doubt not, by the majority of our readers, that any fresh notice of the Respirator may seem almost superfluous; still as there may be some who are not fully acquainted with either its nature or its great value, we deem it our duty, at this season of the year, to call the attention of all our friends to it. In our former notice we gave some account of the construction of the instrument and its principle of action. We will only here repeat that it consists of a series of layers formed of an infinity of fine metallic wires fixed in a frame, and worn over the mouth. All respiration being performed through this, the wires soon acquire considerable warmth from the expired breath, and again yield this up, in part, to the air as it is inspired, so as to temper it ere it reach the lungs. We now speak from our own observation and experience, when we report most favorably of the Respirator. In several instances we have known it productive of the greatest comfort to individuals with irritable air-passages, enabling them to go into the open air in winter without suffering the pain or dyspnoea or cough to which they were otherwise subject in such circumstances; and we have heard of numerous cases of the same kind from our medical and other friends. In consequence of the increased sale of the Respirator, and with a view to its more extensive use, we are happy to find that its inventor, Mr. Jeffreys, to whom pulmonary invalids are deeply indebted, has greatly reduced its price; the instrument being now to be had in most towns at prices varying from ten shillings to twenty or thirty. There are few, if any, practitioners who cannot number one or more patients who, during the winter months, will profit greatly by the use of the Respirator.

DR. LEE ON THE FUNCTION OF THE OVARIES IN MENSTRUATION.

In the article on M. Gendrin's Philosophical Treatise of Medicine, in our last Number, p. 75, the following remark was made: "That M. Gendrin should have found the ovaria ruptured in five cases where menstruation was present is a remarkable coincidence. In a communication read at the Medico-Chirurgical Society, by Dr. Robert Lee, last year, a similar occurrence was stated to have been met with by him in two instances. We want but a few more such facts to establish M. Gendrin's hypothesis, or at least to give it the aspect of a law rather than of a mere coincidence; and until these are obtained, we would again repeat—*not proven.*"

In justice to Dr. Lee, we beg to mention that the two instances above alluded to of ruptured Graafian vesicles found in ovaries removed from the bodies of women who had died during menstruation, are merely supplementary to the collection of facts which Dr. L. published seven years ago in the *Cyclopædia of Medicine*; and, also, that the views he deduced from them are essentially the same as those lately brought forward by M. Gendrin as a new theory of menstruation. We alluded to M. Negrier's claim to priority in opposition to Gendrin; but it is quite evident that neither the one nor the other has any right to be considered *historically* as original observers, however they may have been so in fact. It will be seen from the following extract from the *Cyclopædia of Medicine*, that Mr. Cruikshank must be looked on as the original observer of the fact, and Dr. Lee the author of additional and confirmatory facts; and indisputably, as far as we can trace, the first propounder of the view that menstruation is connected with certain changes in the ovaria.

"There are certain facts which seem to prove that it is not to the influence of the uterus, but of the ovaria that we are to attribute all the changes which take place in the female pelvis, in the mammæ and uterine system at the period of puberty; and it seems not improbable from the following facts, that it is also to certain changes in the Graafian vesicles at the time of menstruation that all the phenomena of that singular process are to be referred.

"On the 11th of March, 1831, we examined the body of a young woman who died during menstruation from inflammation of the median basilic vein. The left ovarium was larger than the right, and at one point a small circular opening, with thin irregular edges, was observed in the peritoneal coat, which led to a cavity of no great depth in the ovarium. Around the opening, to an extent of three or four lines, the surface of the ovarium was of a bright red colour, and considerably elevated above the surrounding part of the peritoneal coat. On cutting into the ovarium, its substance around the opening and depression was vascular, and several Graafian vesicles of different sizes were observed. The right ovarium was in the ordinary state. Both fallopian tubes were intensely red and swollen, and their cavities were filled with menstrual fluid. The lining membrane of the uterus was coated with the same fluid, and the parietes were soft and vascular. The size of the uterus was not increased.

"In the autumn of the same year a woman under twenty years of age died suddenly from acute inflammation of the lungs while menstruating. The body was examined by Mr. John Prout, and the uterine organs were brought to us for inspection. A red soft elevated portion of the right ovarium was also here observed, and at one part the peritoneal coat to a small extent had been removed. The edges of the opening were extremely thin and irregular, and in the substance of the ovarium under the opening was an enlarged Graafian vesicle filled with transparent fluid. Numerous small blood-vessels were seen running along the peritoneal coat of the ovary to the opening. When the substance of the ovarium was laid open, several vesicles of various sizes, and at different depths, were found imbedded in it. The left ovarium presented a natural appearance. The free extremities of the fallopian tubes were gorged with blood. Their cavities were filled with a red-coloured fluid. The uterus was not enlarged, but the parietes were

gorged with blood, and the lining membrane of the fundus was coated with menstrual fluid. A small coagulum of blood likewise adhered to the upper part of the uterus.

"On the 2d of July, 1832, Sir Astley Cooper, to whom the writer had mentioned these cases, sent him the ovary of a woman who died from cholera while menstruating. The ovary was much larger than natural, and at one point there was a small irregular aperture in its peritoneal coat through which a portion of a slender coagulum of blood was suspended. On cutting into the substance of the ovary, it was found to be occupied by three small cavities or cysts, one of which was filled with a clear ropy fluid, another with semi-fluid blood, and the third, which communicated with the opening in the peritoneal coat of the ovary, with a firm coagulum.

"On the 18th of November, 1832, the uterine organs were removed by Messrs. Girdwood and Webster from the body of a young woman who had died suddenly the preceding day when the catamenia were flowing. Both ovaria were remarkably large, and both fallopian tubes were red and turgid. The peritoneal coat of the left ovary was perforated at that extremity which was nearest to the uterus by a circular opening, around which aperture for several lines the surface of the ovary was elevated and of a bright scarlet colour, like extravasated injection. The margin of this opening was thin and smooth, and did not appear to have been produced by laceration. Its centre was slightly depressed below the level of the edges, but there was scarcely the appearance of a cavity beneath. The right ovary was much larger than the left; and, when cut into, a cavity or cyst was found which was filled with half-coagulated blood. The peritoneal coat of this ovary was entire.

"The uterus was large, and when cut into, the parietes appeared to contain an unusual quantity of blood. The inner membrane was of a bright red colour, and coated with a thin layer of catamenial fluid. Both fallopian tubes were red and turgid, and the interior of the left was filled with menstrual fluid, but nothing in the form of a Graafian vesicle could be detected in the tube. The appearances now described have been accurately represented in a drawing made from the parts within two hours after they came into the author's possession.

"In a paper by Mr. Cruikshank, published in 1797, there is an account of similar appearances having been observed by him in a young woman who had died at the monthly period. 'I have also,' he says, 'in my possession the uterus and ovaria of a young woman who died with the menses upon her. The external membranes of the ovary were burst at one place, from whence I suspect an ovum escaped, descended through the tube to the uterus, and was washed off by the menstrual blood.'" (Cyc. of Pract. Med.—art. Ovaria.)

The following is the case recently communicated to the Medico-Chirurgical Society:

"On the 14th of January, 1837, a woman, thirty-seven years of age, who had long suffered from hysteria, died suddenly in St. George's Hospital during menstruation. No morbid appearance was found to account for her death. A small circular aperture was observed in the peritoneum of the left ovary, near the point where the corpus fimbriatum is fixed to the extremity of the ovary. This opening communicated with a cavity in the substance of the ovary, which was surrounded with a soft yellow substance of an oval shape." (Med. Chir. Transactions, vol. xxii. p. 335.)

DYSMENORRHOEA.

[It gives us much pleasure to be able to insert in our pages the following letter which does equal honour to the professional zeal and the benevolence of its talented author. As the letter speaks for itself, we will only here request the best attention of our readers to it, and beg them to understand that, although Dr. Bushman has addressed it especially to his brethren of the Provincial Association,

he will be equally gratified by communications in answer to his appeal, from any members of the profession.]

Observations on Dysmenorrhœa and its Treatment, addressed to the Members of the Provincial Medical Association. By J. STEVENSON BUSHNAN, M.D., Fellow of the Royal College of Physicians of Edinburgh.

Gentlemen,—I am induced to address to you the observations and queries contained in the following circular, by the conviction that medical authorities have hitherto directed much less of their attention to dysmenorrhœa or difficult menstruation, than the frequency of the disease and its very injurious influence on female health imperatively call for.

My own attention has been strongly drawn of late to this affection by the very evident good effects of an ointment of veratria applied to the region of the sacrum; and it occurred to me, considering how slow and liable to fallacy the experience of a single individual is, even under the most favorable circumstances, that, by appealing to the zeal and humanity of my medical brethren, and particularly by availing myself of the good fellowship of the members of the Association, I might be able to collect, in a comparatively short time, with a view to publication, much information of the greatest practical use, regarding the varieties of this painful affection, the comparative frequency of each variety, and the extent to which in these the proposed remedy is applicable.

Since I stated the result of my experience of this remedy to the Provincial Medical and Surgical Association, at the Southampton Meeting in July, I have received numerous communications upon the subject, some asking for further information as to the employment of the ointment, and others announcing the complete success they have experienced by its use. From these, however, I shall select but one example: Dr. Jeffreys, of Liverpool, having determined to try the remedy, writes me on the 19th of August, "A most distinct and distressing instance has within these few last days fallen within the sphere of my observation; and the efficacy of your remedy has afforded me great satisfaction and unspeakable delight to the young lady and her family, whose age is about twenty, and who has suffered beyond all description from this distressing visitor, from the first appearance of the catamenia."

The ointment used was of the same strength as that which I employ, namely, made with half a drachm of the veratria to an ounce of prepared lard; and a portion the size of a hazel-nut was rubbed three or four times a day upon the sacrum.

That there should be a very considerable diversity in the symptoms as well as in the states of the habit in which dysmenorrhœa occurs, could not but be anticipated, even if the disease had been determined to be on the whole of one character. And it appears to me to be the greatest defect in our knowledge of this malady that it is not sufficiently settled whether the varieties are of an essential or only of an accidental kind, that is, whether there be forms of the disease which, as requiring from their own intrinsic nature a separate kind of treatment, deserve to be distinguished specifically from the others. Mere complications of a disease do not afford an adequate ground for the distinction of species: and thus, though it may be admitted that inflammatory symptoms do sometimes attend dysmenorrhœa, it does not therefore follow that the disease is ever essentially inflammatory or that there is an inflammatory species, that is, one depending for its existence on inflammation. It is, however, very desirable to have it settled beyond all doubt, whether there be such an inflammatory species, however rare, and if there be not, how far inflammatory symptoms are apt to be accidentally concomitant. Were it not for the statements of authors worthy of credit, I should be myself inclined to think that there is no essentially inflammatory species; and that inflammation, as a concomitant, is exceedingly rare.

Though it does not appear that the varieties commonly met with in practice, or described by authors, are of such a kind as not to be explicable on the supposition of the mere casual variation of one disease, still it is advisable, to ensure

accuracy, to consider well any evidence that may be suggested to the contrary: and, in particular, to note under what difference of circumstances, if any, the simple and membranous discharges occur; again, to take pains to discover whether the violent and painful efforts which sometimes occur at the monthly periods, without any menstrual secretion whatever, and which has been termed menstrual ischuria, be more allied in their origin to dysmenorrhœa, or to amenorrhœa, to which last verbally they belong; also, whether there be anything peculiar in that form of the disease in which the secretion comes off painfully, drop by drop, named like the last, in analogy to the corresponding diseases of the urinary system, Menstrual Strangury. (Capuron, "Traité des Maladies des Femmes," p. 70.) Such names, however, I think it were better to avoid.

Moreover there are differences in the kind of pain in the time of its occurrence and of its duration which deserve attention, as possibly bearing on the character of each case. Thus, as it is well known, the pain usually precedes the discharge and disappears as this becomes free; yet on other occasions, the pain during its whole continuance, is attended with a discharge more copious than usual, escaping in gushes and mixed with coagulated blood, while at other times the pain does not begin till the secretion has gone on regularly for some time, the pain bringing with it either an increase or diminution of the discharge, but not ceasing till the secretion is entirely at an end. (Cyclop. Pract. Med.—Art. Dysmenorrhœa.)

Another point upon which some doubt seems to exist is, how far dysmenorrhœa is a cause of abortion, or whether it is not more uniformly a source of sterility. Unquestionably the membranous discharges have been mistaken for abortions; the proof however of such a mistake having been committed does not put the question at rest. This then is a part of the history of the disease still open to investigation; for there is no better agreement in regard to it among the authorities of our day than among those of the preceding ages. (See Parr, Lond. Med. Dic.—Art. Menses; Hamilton, Outlines of Midwifery; Cyclopædia, l. c.) I am myself inclined to think that conception is a very rare occurrence during the continuance of dysmenorrhœa.

Lastly, since leucorrhœa sometimes is conjoined with dysmenorrhœa, it is very desirable to ascertain as far as possible in what proportion of cases this complication exists.

The acknowledged good effects of opiates point to the nervous system as the source of this disease. It may be regarded as falling under what Andral terms, Perversion of Nervous Action. (Précis d'Anatomie Pathologique, tom. i. p. 574.) The vascular orgasm, or hyperemia of the uterine system which, occurring monthly, relieves itself by secretion in healthy females without any very great constitutional disturbance, proves too great a stimulus to the nervous system at large, or at least to that part of it connected with the female reproductive organs in those in whom an undue nervous excitability exists. Hence, as in other cases of unusual irritation acting on the nerves of a part, or of ordinary excitants operating on an unusual susceptibility of the same, extraordinary sensations and movements arise, and are followed by impediments to the natural function of the uterus, even in so far as it depends on the vascular system, in which the nerves themselves may be but remotely concerned. Narcotic substances, by diminishing the excitability of the nerves, break or weaken the chief link in this chain of morbid changes, and thus permit the ordinary powers of the system to operate with less embarrassment.*

* Any lengthened remarks upon the general theory of nervous diseases would be out of place; but, "brevis esse laboro, obscurus fio;" and I may here observe:

1. That unusual irritations of sentient nerves are followed by deranged actions of muscular organs through their motor nerves.

2. That ordinary stimuli acting on an unusual susceptibility of sentient nerves produce similar derangements.

3. That the nerves of the uterus are unusually susceptible of irritation at the menstrual periods.

4. That derangements of nervous action disturb secretion, even though secretion be not directly dependent on the nerves—being a function of the vascular system only.

sidence. The generosity of his character, however, prevented his receiving more than a very moderate remuneration from his extensive practice. His gratuitous services were often given to a very considerable extent. About the year 1784, in conjunction with a benevolent clergyman of the established church, the late Rev. W. Walker, he projected and succeeded in establishing a Dispensary at Chichester. At a much later period, he supported a plan brought forward by his friend and brother physician, Dr. Forbes, of erecting an Infirmary there; and he had the happiness to witness the complete success of this undertaking. Dr. Sanden's character as a physician was duly appreciated by those who were most competent to form a correct judgment; and the highest testimony to his medical skill and science was repeatedly given by the late celebrated Dr. Matthew Baillie, with whom he had occasionally very agreeable and friendly intercourse. He was one of the founders of the Literary Society at Chichester, and for many years its president.

In the year 1782, he was married to Miss Grace Poole, sister of the late Rev. Sir Henry Poole, of the Hook, near Lewes; a lady possessing every quality of the head and heart which could ensure matrimonial felicity. They lived together fifty years in the closest bonds of esteem and affection. She died in the year 1832. They had no children.

The mind of Dr. Sanden was of a decidedly superior order. His apprehension was clear and distinct, his judgment sound, his reasoning power strong, his taste refined and elegant. His knowledge and skill in his profession have been already adverted to. He was well acquainted with several branches of science, and his mind ranged over almost the whole extent of literature. To classical literature he had given much attention; poetry and the *belles lettres* greatly interested him; but he more particularly devoted himself to theological, metaphysical, and ethical studies. He had embraced early in life those religious opinions which are commonly called Unitarian, and he continued strongly attached to them as long as his faculties remained. In philosophy, he was an admirer and follower of Locke, Hartley, Priestley, and Paley. He regarded Locke with the highest respect, as the father of rational metaphysics; and he fully adopted the metaphysical theory of Hartley. He agreed in nearly all the philosophical and theological opinions of Priestley, for whose character he entertained great esteem; but for many years before his death he had ceased to think highly of the judgment of that great and excellent man. He estimated highly the writings of Paley. In politics, he was a decided and moderate Whig; sincerely attached to the British constitution, but anxious to forward every real reform, and to improve the institutions of his country. It is certain that he thought highly of the Philosopher of Malmesbury, the embracing of whose opinions seemed to many of his friends inconsistent with his general principles. He published a vindication of his sentiments respecting the doctrines of Hobbes, in a series of letters, with the signature of Hylas, in the *Monthly Repository*.

He led an extremely retired and studious life, and occasionally, but by no means frequently nor to any great extent, gave his thoughts to the public. The following is a list of his principal publications:

Miscellaneous Observations on some points of the Controversy between the Materialists and their Opponents. 1780.

Short Strictures on the Method of Treatment, recommended by Dr. Dawson in Acute Rheumatism. 1782.

A Letter to the Bishop of St. David's, occasioned by his Sermon on the Principle of Vitality in Man. 1789.

Select Parts of the Introduction to Dr. Gregory's Philosophical and Literary Essays, methodically arranged and illustrated with Remarks, by an Annotator.

Three Discourses on the Use of Books, delivered to the Literary Society at Chichester in the years 1800, 1801, and 1802.

Singular Termination of a Case of Enteritis, (*Annals of Med.* VI.) 1801.

Two Letters to Dr. Goddard. 1811, 1815.

A Tribute to the Memory of John Bayly, M.D. 1816.

A short Biographical Memoir of Thomas Potter Powell, M.D., prefixed to a Sermon on his Death. 1816.

Unitarianism, Old and New. 1817.

Letters signed Hylas (already mentioned.)

His style as a writer was very perspicuous, pure and elegant; and he expressed himself in conversation with singular neatness and accuracy of language, though not without considerable hesitation. His manners were those of a perfect gentleman of the old school. He was what would be considered in the present day too ceremonious; and there was an appearance of reserve and coldness in his communications with his nearest friends. This, however, was mere outside; his friendships were in reality peculiarly warm. No man was more averse to giving pain. Humility was a leading trait in his character; and perhaps his usefulness was in some measure restricted by a want of that confidence in himself to which his abilities and knowledge entitled him. Nevertheless, he was capable (when his natural diffidence could be overcome) of acting with great decision and firmness. His benevolence extended to all, and his bounty was largely distributed among those who needed his assistance. A deep-seated and heart-felt piety was the leading feature of his character. His views of religion were most cheering; he saw God in everything, and believed that all events are regulated by Divine Providence.

For the last five years of his life he had been confined to his bed; his faculties had failed by degrees; and for a considerable time he had ceased to know his friends, and had become quite unconscious of everything about him. The powers of life at length gave way, and he tranquilly yielded up his breath, in the eighty-ninth year of his age.

II.

DIED, on Saturday, the 11th of July, at his residence in the South Pallant, Chichester, in the eighty-ninth year of his age, Thomas Sanden, M.D., a man of rare intellectual endowments, and of yet rarer virtues. He practised as a physician in his native city for upwards of fifty years, and with a degree of skill, liberality, and kindness which acquired for him the love and veneration of the whole community. Dr. Sanden's time of birth and education placed him in the class of the older English physicians, who possessed a knowledge of classical literature and of the medicine of the ancients, rarely acquired by the practitioners of the present day; while his active and liberal spirit, totally free from the prejudices of age or sect, kept his acquirements constantly on a level with the modern improvements in medical science. The result was that Dr. Sanden was one of the most scientific and successful physicians of his time. His learning was great and varied, embracing the whole field of science and literature. His favorite studies, extra-professional, were metaphysics and theology, in both of which he was profoundly versed. His published writings, which were for the most part anonymous, prove him to have possessed a most refined literary taste, and an acute and logical mind. In the moral part of his nature, in his conduct as a member of society, and in all the relations of life, Dr. Sanden was, probably, as nearly faultless as falls to the lot of frail mortals. In affection for his fellow-men of all races and ranks, in the desire to do good and eschew evil, in charity and liberality in the interpretation of the words, actions, and motives of all, in love of God and in profound veneration of His goodness and superintending mercy, Dr. Sanden was excelled by no man; and rarely has there descended to the grave a purer spirit, or one who, through a long and active life, more constantly, devotedly, and sincerely followed the Christian precepts of doing as we would be done unto, of loving all men as brothers, of cherishing in the inmost heart a charity that beareth all things, and forgiveth all things, and hopeth all things. There was a defect in Dr. Sanden's intellectual constitution which, in some degree, interfered with his usefulness as a member of society. His extreme modesty and self-depreciation led to a want of boldness in action which often rendered ineffective what his benevolence planned and his judgment approved. The same qualities confined him, through his whole career, to the quieter shades of life—to the *tranquilla silentia vite*, as he himself expressed it; and it was, in consequence, only his more intimate friends who knew the full extent of his mental endowments and acquirements, and his almost matchless virtues. By such friends he was loved and venerated with a warmth which cannot well be measured and which will endure with memory.

DR. TODD.

DIED on the 4th August, at the village of Hurst, in Sussex, TWEEDIE JOHN TODD, M.D., for many years one of the principal physicians of Brighton. Dr. Todd was born at Berwick in the year 1789, his father being treasurer of the corporation of that town. He received his classical education in his native town, whence he proceeded, at an early age, to study medicine at Edinburgh. He did not, however, remain to graduate, having accepted the appointment of assistant-surgeon in the navy in the year 1809. He passed the first eighteen months of his service in the improving field of the great naval hospital at Plymouth, where he already gave promise of his future excellence as a practitioner. Shortly after going afloat he was promoted to the rank of surgeon by the present commander in chief in the Mediterranean, Admiral Sir Robert Stopford, who entertained so high an opinion of Dr. Todd that, although then only in his twenty-third year, he appointed him to his own flag-ship. In this capacity he served several years, chiefly in the East Indies and at the Cape of Good Hope, where he made his experiments on Torpedo Electricus, afterwards published in the Philosophical Transactions. On retiring from the navy in 1816, Dr. Todd went abroad, visiting various places on the continent, and, before his return, spending six or seven years consecutively in Italy. During part of this time, he travelled as physician with the late Marchioness of Bute, and remained with her for some time after her return to England. In the year 1829 he settled at Brighton, and speedily came into very extensive practice, which he retained until within six months of his death, when he was attacked by tuberculous pleurisy, which proved fatal after confining him for many months to his bed. Dr. Todd obtained his first degree as a physician at Montpellier during his residence abroad, and he took a second at Aberdeen previously to settling at Brighton. He was prevented taking his degree at Edinburgh, as he wished, from not having completed the full measure of study required by the statutes of the University; but before receiving the doctorate at Aberdeen he visited that city, and underwent an examination by the medical faculty of the University.

Dr. Todd was a man of very considerable learning and of great talents. His knowledge of his profession as a science was profound, and he had the happy and rare talent of making his scientific knowledge habitually subservient to his practice of medicine as an art. This, added to his possession of that tact "unteachable untaught," without which mere learning is of slight avail in practical medicine, rendered him one of the most skilful and successful among his contemporary physicians. In his views of practice he combined most happily the rational expectation or trust in nature of the Hippocratic school with the traditionary wisdom and fearless energy of British empiricism, blending the whole, by his intimate knowledge of physiology and pathology, into a scientific code of therapeutics which led to the most successful results. In accordance with this system he trusted fully as much to regimen as to medicaments; and of this last class of agents he greatly prized mineral waters, being conversant with their true mode of action and proper application to a degree we believe rare among the practitioners of this country.

Dr. Todd was the author of several papers on natural history, published in the Transactions of the Royal Society and the Journal of Science—On the Torpedo, on the Regeneration of parts in the Aquatic Salamander,—On the luminous power of some of the Lampyridæ, &c. He was the author of the elaborate article *Indigestion* in the Cyclopædia of Medicine, a treatise strikingly exhibiting his knowledge of what had been done by others, his accuracy and minuteness of observation, as well as his scientific knowledge and practical skill. This treatise we regard as by far the best that has yet appeared on the subject. The only separate work published by Dr. Todd was that which he named *The Book of Analysis*, and which appeared in 1831. In this small volume, which he also entitled *A New Method of Experience*, he endeavoured to point out the means of applying the Baconian induction to Medicine and the other natural sciences, and he succeeded in this attempt to a degree which only those who have examined the work with attention can fully appreciate. He labours here in the same field as Louis, but altogether independently of that great physician, who, we are convinced, would be one of the foremost in admitting that Dr.

Todd was the contemporaneous discoverer and promulgator of a *numerical method*, if not exactly similar to, of the same nature and importance as his own. The means by which Dr. Todd proposed to improve both the science and practice of medicine are "comprehended," he says, "in a few words—true, distinct, circumstantial *observation*—clear, severe, searching *analysis*;" and he planned a series of tables and signs for carrying out his numerical method, which are no less ingenious than philosophical. The Book of Analysis has not yet gathered all its fame; and we ourselves hope, ere long, fully to discuss its merits in our pages.

Dr. Todd had been engaged for many years in a series of microscopical researches on living animals illustrative of different parts of physiological and pathological science, and especially of the processes employed by nature in the healing and regeneration of wounded and lost parts. His labour has not all perished with him, although we fear he has left on record few of the generalized results of his observations and experiments. He has, however, left a large collection of beautiful microscopical preparations, which we trust may yet be rendered fruitful to science in the hands of some kindred spirit, and thus prove the best and most characteristic memorial and monument of their lamented author.

Dr. Todd was a man of high moral excellence, of the strictest honour and integrity, of an amiable temper, and most pleasing manners. He was no less beloved than respected by his numerous friends and patients.

BOOKS RECEIVED FOR REVIEW.

ENGLISH.

1. Statistical Reports of the Sickness, Mortality, and Invaliding among the Troops in Western Africa, St. Helena, the Cape of Good Hope, and the Mauritius; prepared from the records in the army medical department and war-office returns. By Major Tulloch.—London, 1840. Fol.
2. The Principles of Botany; structural, functional, and systematic. For the use of students in medicine. By W. H. Willshire, M.D.—London, 1840. Sm. 8vo, pp. 232. 6s.
3. Transactions of the Medical and Physical Society of Bombay. Vol. II.—Bombay, 1839. 8vo, pp. 269.
4. First Principles of Surgery, being an Outline of Inflammation and its effects. By George T. Morgan, A.M., formerly Lecturer on Surgery in Aberdeen.—London, 1840. 8vo, 18s. Part III., 7s. 6d.
5. Practical Observations on Distortions of the Spine, Chest, and Limbs; together with remarks on paralytic and other diseases connected with impaired or defective motion. By W. T. Ward, F.R.S., M.A.C.S.—London, 1840. 8vo, pp. 202. 7s.
6. Anatomical Sketches and Diagrams. By Messrs. Wormald and M'Whinnie. Part III. 4s.
7. On Diseases of the Bladder and Prostate Gland. With Plates. By William Coulson. Second Edition, greatly enlarged.—London, 1840. 8vo, pp. 258. 7s.
8. Guy's Hospital Reports. No. X. April, 1840. 8vo, pp. 184. 6s.
9. Dr. Ramsbotham's Atlas of Obstetric Plates. Nos. IV. V. VI. VII. VIII. 1840. 1s. 6d.
10. Odontography; or a Treatise on the Comparative Anatomy of the Teeth; their physiological relations, mode of development, and microscopic structure in the vertebrate animals, illustrated by upwards of 150 Plates. By Richard Owen, F.R.S., Hunterian Professor to the Royal College of Surgeons, London. Part I.—London, 1840. Royal 8vo, pp. 112. Fifty Plates. £1 11s. 6d.
11. The Retrospective Address in Surgery, from July 1836 to July 1839, delivered before the Meeting of the Provincial Medical Association at Liverpool on the 24th July. By J. H. James, Esq., Surgeon to the Devon and Exeter Hospital.—Worcester, 1840. 8vo, pp. 92.
12. Müller's Elements of Physiology. Translated from the German, with Notes. By W. Baly, M.D. Second Edition. Vol. I. 8vo, pp. 848. 20s.
13. The Library of Medicine. Arranged and edited by Alexander Tweedie, M.D., F.R.S., &c. Practical Medicine. Vols. I. II. III. IV.—London, 1840. 8vo, pp. 440, 353, 385, 361. 10s. 6d. each.
14. A Treatise on Amaurosis and Amaurotic Affections. By Edward Octavius Hocken.—Lond. 1840. 8vo, pp. 359. 10s. 6d.
15. First Lines of Education: a Course of Four Lectures, delivered to the Literary and Scientific Institution, Worcester. By E. A. Turley, Surgeon.—Worcester, 1839. 8vo, pp. 84.
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